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ABSTRACT

This report provides a detailed summary of the TI-IN United Star Network research and demonstration project, which was funded by the United States Department of Education's Star Schools Program from 1988-1990. The stated goals of the project were: (1) establishment of a satellite-based telecommunications partnership composed of public institutions of higher education, state education agencies, a local education agency, and a private telecommunications network; (2) installation of satellite receive (downlink) technology in 316 high schools across the nation which were economically and educationally disadvantaged; (3) demonstration of TI-IN United Star Network as a developer and broadcaster of over 2,600 hours of live, interactive satellite-based programs, targeted for students and teachers, in the subject areas of mathematics and science; and (4) evaluation of the project including programming and school utilization. The report outlines and discusses the multiple aspects of implementation and demonstration, including an overview of the structure of the partnership, the process of identifying and equipping sites, the programming developed over the two year project, challenges encountered during the implementation, technology and programming, project evaluation, and post-Star School activities. The remainder of the report consists of 13 attachments: (1) list of utilization specialists; (2) Star Schools brochure; (3) operational guidelines; (4) TI-IN Network newsletter; (5) newspaper and magazine articles; (6) questions and answers about Star Schools, a list specifying hardware and programming awards to Star School recipients, year 1 and year 2 programming; (7) a list of Star School sites by state; (8) Illinois State Board of Education and Western Illinois University Application and assurances; (9) description of programming provided by partners; (10) enrollment in courses; (11) inventory list; (12) scholarships; and (13) evaluations. (DB)

TI-IN UNITED STAR NETWORK
FINAL PROJECT REPORT
(OCT 1, 1988 - SEPT 30, 1990)
FOR
STAR SCHOOLS PROGRAM
UNITED STATES
DEPARTMENT OF EDUCATION

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INTRODUCTION

TI-IN United Star Network was a research and demonstration project funded by the United States Department of Education's Star Schools Program, beginning October 1, 1988 through September 30, 1990. The demonstration project successfully accomplished the primary goals and objectives which included: 1) establishment of a satellite-based telecommunications partnership composed of public institutions of higher education, state education agencies, a local education agency, and a private telecommunications network; 2) installation of satellite receive (downlink) technology in 316 high schools across the nation which were economically and educationally disadvantaged; 3) demonstration of TI-IN United Star Network as a developer and broadcaster of over 2,600 hours of live, interactive satellite-based programs, targeted for students and teachers, in the critical subjects of math and science, and 4) evaluation of the project including, programming and school utilization.

The final report was designed to provide a detailed summary of the project. For the reader, the report outlines and discusses the multiple aspects of implementation and demonstration. These include: an overview of the structure of the partnership, the process of identifying and equipping sites, the programming developed over the two year project, challenges encountered during the implementation, technology and programming, project evaluation, and post Star Schools activities.

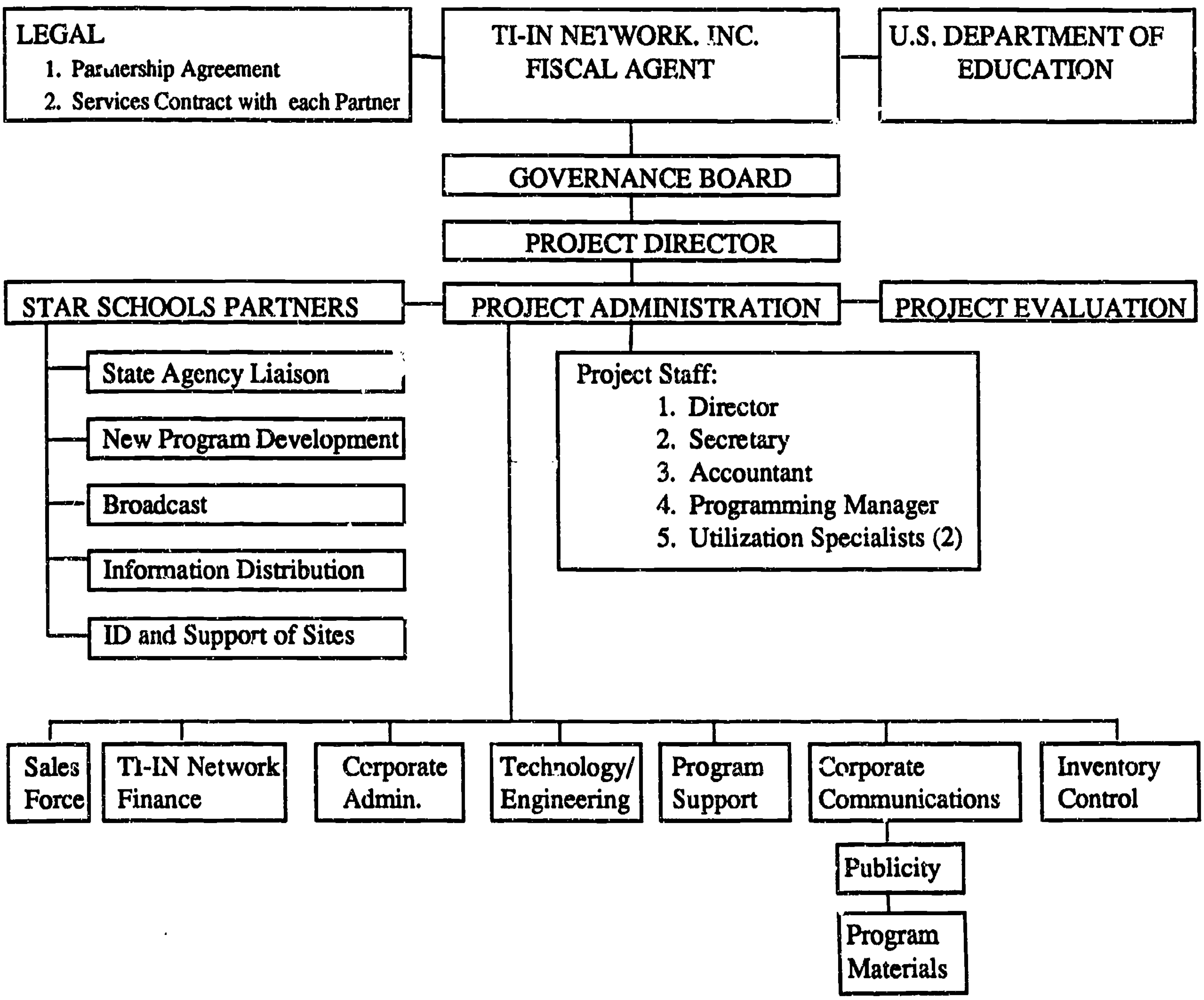
1.0 OVERVIEW OF PROJECT PARTNERSHIP

The first goal of the Project was to establish TI-IN United Star Network, a multi-state telecommunications partnership. The partnership was developed to equalize and increase access to educational resources in math, science and foreign languages for high school students and their teachers.

1.1 Role of TI-IN Network, Inc. The TI-IN United Star Network Project was integrated into the existing infrastructure of the TI-IN Network, Inc. To review TI-IN's organizational chart as it incorporated the United Star Network, see Chart One. The extensive satellite delivery experience and multi-services provided by TI-IN Network Inc. was employed to: facilitate the acquisition and installation of hardware, schedule and deliver instructional programs, and develop promotional and information dissemination materials. In addition, TI-IN, as fiscal agent, was responsible for disbursement of funds and quarterly reporting for the Project.

Chart One

TI-IN UNITED STAR NETWORK



1.2 TI-IN United Star Network Partnership. The foundation of this Star Schools Project involved a telecommunications partnership consisting of private enterprise, state agencies of education, institutions of higher education, and local education agencies. The partnership structure was established in Spring 1988. The primary criteria for participating partners was that each partner, who planned to develop programming, would have an existing satellite uplink facility. This facility was to serve as a portion of the in-kind contribution required by the Star Schools Program.

There were nine partners that represented six states. They included the following organizations: University of Alabama at Tuscaloosa, California State University at Chico, Illinois State Board of Education, Mississippi State University at Starkville, North Carolina Department of Public Instruction, Western Illinois University, Texas Education Agency, Region 20 Education Service Center, and TI-IN Network.

TI-IN Network was selected by the partners to serve as the central fiscal agent and managing partner. The partnership implemented a participatory type of management style; whereby, each partner was both represented on a Board of Governance (see the membership list), and was responsible for coordinating and implementing the Project's goals within their geographic region as well as nationwide. State Education representatives, who were not official partners (Alabama and Mississippi), were invited to serve on the Board.

The strategy of involving each partner in programming activities, site identification/management, and Board Meetings was implemented to assure that each partner had a significant level of ownership in successfully implementing the Project goals. Overall, the responsibilities of each partner included: identifying local school sites; disseminating information regarding the Project to schools as downlink sites; training new users; financial management of their program and equipment budget; attending Board meetings; developing and broadcasting original programming; maintaining inventory of equipment; and writing quarterly written and financial reports.

1.3 Board of Governance. Each quarter, the Board members consisting of Project Partners and representatives from State Departments of Education met to discuss problems, concerns, and to establish policy regarding operation aspects of the Project. The Board meetings were designed to provide a working environment where participants discussed problems and understood the overall accomplishments of each Partner. The location of each meeting rotated so to allow each Partner an opportunity to host a meeting. The Project Officers from the U.S. Department of Education attended four of the meetings.

1.4 Role of State Agencies of Education. All the point of contacts at state education agencies, which were impacted by the Project, were mailed information about the Project in Fall 1989. This included all 19 states where Star Schools sites were designated and equipped.

Most of the state agencies of education actively participated in the selection of sites. Representatives from the six agencies, where the partners resided, were invited to serve on the Board of Governance. The state representatives assumed an active role in dealing with

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certification and accreditation issues. When necessary, because of state agency budget constraints, TI-IN reimbursed state agency representatives for Board travel expenses.

1.5 Project Personnel. TI-IN Network, Inc., as fiscal agent and managing partner of the TI-IN United Star Network, hired personnel to administer the Project. All TI-IN United Star Network personnel were hired in the first quarter.

Project Director:	Pamela S. Pease, Ph.D.
Programming Manager:	Sandra LaPlante
Project Accountant:	Mark Armstrong
	Nancy Thoss (replaced Mark Armstrong)
Utilization Specialists:	Ron Davies
	Mark Clapp (replaced Jim Wall)
Project Secretary:	Mae Beth Trees Hooter

1.5.1 Scope of Responsibilities for Administrative Staff. The Director's primary responsibility was the overall management and implementation of TI-IN United Star Network's fiscal and project goals. The Programming Manager coordinated the instructional programming activities across the partnership as well as scheduled satellite time. The Project Accountant was hired to monitor the disbursement of funds and maintain the financial records of United Star Network. The Project Secretary served as the administrative assistant providing support to other staff members.

Staff were responsible for filing quarterly financial and written progress reports, answering inquiries, dispersing funds, coordination of programming and installation of the technology, and maintaining inventory records of all equipment. In addition, the staff registered the students for courses and teachers for staff development and college courses. Other duties included certifying teachers and processing accreditation applications for high school courses developed under the Project. A great percentage of the Project staff time was spent calling and follow-up with each and every designated Star Schools site.

1.5.2 Role of Utilization Specialists. The Utilization Specialists were hired to be the primary field contacts for downlink sites (LEAs) in Alabama, Mississippi, Illinois, and North Carolina. As an in-kind contribution, TI-IN Network personnel who assumed similar roles in California, Oregon, Washington, New Mexico, Arizona, Texas, New York and several mid-west states were assigned to be the primary contacts for the Star Schools funded downlink sites in their regions. The rationale for this breakdown of territories was to increase face-to-face contact with sites and to reduce travel costs. See Attachment A for a complete breakdown of the Utilization Specialists.

As the title denotes, these specialists served a pivotal role in the implementation and utilization of the satellite hardware and programming at Star Schools downlink (LEA) sites. Staff members were assigned the following responsibilities: 1) to meet with the primary contact(s) at a downlink site for the purpose of outlining the United Star Network Project; 2) to conduct a site survey of each downlink site in preparation for the installation of satellite receiving hardware; 3) to conduct training sessions for students and teachers on

how to use the hardware and programming; and 4) to serve as an on-going contact to a downlink site for the duration of the Project.

1.5.3 Agreements Between United Star Partners. A Letter of Agreement was developed by TI-IN Network's legal counsel for signature by each partner. These formal agreements were tailored to reflect the specific programming goals of each partner and an assurance of completion of the goals. Written descriptive and financial progress reports were required quarterly under these agreements. These were signed by May 1989.

1.6 Installation of Headend and Calling Processing for Uplinks. In November 1988, TI-IN Network began to install equipment at each of the broadcast/uplink facilities. The retrofit enabled a Ku-band satellite uplink to become compatible with the specialized technical configuration which provided interactivity via TI-IN Network. This installation was essential to the delivery of programming. Installation of this equipment at the uplink sites -- California State University at Chico, Mississippi State University, and University of Alabama -- were completed during Spring 1989. Uplink sites in North Carolina and Illinois were equipped outside of the grant funding during the same timeframe.

1.7 Evaluation. A committee made up of the partners was formed to discuss evaluation, goals, and objectives. The overall project evaluation plan was developed by February 1989. Dr. Jennings Bryant from the Communications School at the University of Alabama was contracted to conduct the evaluation. The Project Director worked with the Evaluator. Each program entity began developing their own evaluation activities, too.

1.8 Communications and Information Dissemination Activities. A brochure was developed that described the United Star Network Project. This was designed to provide a general overview of United Star Network's Star Schools demonstration project. The brochure provided information for two audiences -- staff from recipient downlink sites (LEAs) and the general public. See Attachment B to review the Brochure.

Promotional videotapes in Year One and Two were developed by TI-IN. These videotapes outlined the Project using a video format. The tape was distributed to the Partners and all designated sites.

To establish a Project identity, a broadcast quality video logo was developed in Fall 1988. The logo was used as a leader for each of the instructional programs developed and broadcast by the TI-IN United Star Network partnership.

1.8.1 General Information Dissemination. The Project staff developed and wrote the user manual entitled, Operational Guidelines. The manual explained in detail how to use the equipment, register students in courses and programs, logistics about distance learning, and other operational details. See Attachment C to review the document.

Periodically, throughout the duration of the Project, articles were written and published in TI-IN Network's Subscriber Newsletter that described the activities related to the Project. See Attachment D to review these publications.

In general, there was a high level of interest exhibited by news reporters and magazine editors located across the United States. A general Project press kit was developed and distributed to each Partner as well as press organizations. Numerous independent newspaper and magazine articles were written about the United Star Network. A sample of these articles were collected from each of the partner states. See Attachment E to review the sample.

1.8.2 Information Dissemination to Downlink Recipients. Though many news articles and promotional materials were written about Star Schools, much confusion was experienced by the potential recipient downlink sites (LEAs). Most had limited information and understanding regarding Star Schools. The problem was exacerbated by the fact that these downlink sites knew very little (if anything) about distance learning technology and instructional services available over distance learning.

To overcome this information gap, several Project Fact Sheets were developed. Packets of information and the Project videotape were mailed to each of the recipient schools as soon as they were identified by a downlink site.. These informational pieces included: 1) questions and answers about Star Schools; 2) a list that specified the hardware and programming award to Star Schools recipients (downlinks); and 3) a list of Programming for Year One and Year Two. See Attachment F to review these materials. At the time of installation, each site was mailed the Operational Guidelines.

It was the primary responsibility of the Utilization Specialists to follow-up with each downlink site to clarify questions and provide additional information. The United Star Network's videotape was shown to personnel at downlink sites, as another information dissemination technique. When possible, project personnel and utilization staff made face-to-face presentations to staff at designated sites.

In addition, each of the United Star Network Partners, who designated and identified sites, provided information to each school that reinforced their regional commitment and identification. These activities included writing letters, following-up on the telephone, and organizing regional group meetings.

1.8.3 TI-IN United Star Network Open House. In April 1989, after the sites were equipped with the hardware, an Open House was developed and broadcast by satellite. For TI-IN, this was the first time in its history that it was able to successfully switch between more than two different sites during any given program. Since that time this became common practice.

The one and one-half hour informational teleconference introduced each Partner and provided an overview of the Project goals for the benefit of each site. Each Partner prepared a 15-minute presentation to provide an overview of their programming goals. Like all TI-IN programming, viewers were able to interact with the presenters through audio "Talkback." This was broadcast in the clear to allow any of the other Star Schools funded projects and their sites to receive the program.

1.9 Project Related Meetings and Teleconferences. TI-IN United Star Network took an active role in disseminating information nationwide. These included discussion of both the U.S. Department of Education Star Schools Program and TI-IN United Star Network. Information dissemination activities ranged from presentations and/or attendance at major conferences to collaborative activities with other organizations including other funded Star Schools projects. The following list identifies the date, purpose of the meeting, and media employed to participate in dissemination activities over the course of the Project.

Date	Purpose of Meeting	Mode
October 27, 1988	Governance Board Meeting	Audio-teleconferencing
November 30, 1988	Overview of TI-IN (Mississippi State University)	TI-IN Network (satellite)
December 11, 1988	Star Schools (Project Meeting - U.S. Dept. of Education)	Face-to-face
December 12, 1988	Evaluation Meeting	Audio-teleconferencing
December 14, 1988	Governance Board Meeting	Face-to-face
December 21, 1988	w/TERC Star Schools Project	Face-to-face
January 11, 1989	New Subscriber Orientation	TI-IN Network (satellite)
January 13, 1989	New Subscriber Orientation	TI-IN Network (satellite)
January 16, 1989	Star Schools Orientation	TI-IN Network (satellite)
January 18, 1989	Program Advisory Meeting	TI-IN Network (satellite)
January 31, 1989	General Facilitator Training	TI-IN Network (satellite)
Jan - March	Administrative/ Training Meetings	TI-IN Network (satellite)
February 2, 1989	Star Schools Orientation	TI-IN Network (satellite)
February 3, 1989	ACET Star Schools Presentation	Satellite - Uplink Dallas
February 6, 1989	TERC Star Schools Project	Face-to-face
February 7, 1989	Technical Orientation	TI-IN Network (satellite)
February 8, 1989	Subscriber Orientation	TI-IN Network (satellite)
February 8, 1989	Star Schools Orientation	TI-IN Network (satellite)
February 13, 1989	Subscriber Orientation	TI-IN Network (satellite)
February 13, 1989	Star Schools Orientation	TI-IN Network (satellite)
February 15, 1989	Program Advisory Meeting	TI-IN Network (satellite)
February 15, 1989	New Subscriber Orientation	TI-IN Network (satellite)
February 16, 1989	Governance Board Meeting (Raleigh, NC)	Face-to-face
February 21, 1989	Subscriber Orientation	TI-IN Network (satellite)
February 21, 1989	Star Schools Orientation	TI-IN Network (satellite)
February 29, 1989	Australian Distance Learning Conference	Satellite (Special Uplink)
March 1, 1989	Meeting with Evaluator and Alabama Teachers/ Partner	Face-to-face

Date	Purpose of Meeting	Mode
March 8, 1989	Subscriber Orientation	TI-IN Network (satellite)
March 14,1989	Technical Checkout	TI-IN Network (satellite)
March 15,1989	Program Advisory Meeting	TI-IN Network (satellite)
March 30,1989	Alabama Teachers Visitation To Region 20 and TI-IN	Face-to-face
April 19,1989	Program Advisory Meeting	TI-IN Network (satellite)
April 27,1989	Open House - All Partners	TI-IN Network (satellite)
July 11, 1989	Met with Connie Stout of Texas Education Agency to discuss Computer-based Instruction Program	Face-to-face
August 8, 1989	Conference on Teaching at A Distance - Madison, Wisconsin (Presentation)	Face-to-face
August 23, 1989	Star Schools Orientation	TI-IN Network (satellite)
September 11,1989	Discuss Budget with Project Officer (Washington, D.C.)	Face-to-face
September 11,1989	Discuss Project with National Education Association (NEA) Representatives, (Washington, D.C.)	Face-to-face
September 14,1989	Subscriber Orientation	TI-IN Network (satellite)
September 24,25, 26,1989	Mississippi State Education Conference (Jackson, MS) (Presentation)	Face-to-face
September 27,28, 29, 1989	Governance Board Meeting (Chico, CA)	Face-to-face
October 11, 1989	Met with Dr. Harry Knopke from University of Alabama	Face-to-face
October 17, 1989	Met with Principals and Administrators in Springfield, Il	Face-to-face
October 23, 24, 25, 1989	Presentation at TELECON IX (San Jose, Ca)	Face-to-face
December 6, 7, 8, 1989	Project Directors Meeting In Washington, DC	Face-to-face
December 13, 1989	Met with Dr. Tom Saterfiel at Mississippi State Dept. of Education in Jackson, MS	Face-to-face
December 14, 1989	Met with Dr. Ron Wright at Alabama State Dept. of Education in Montgomery, AL	Face-to-face
December 14, 1989	Met with Harry Knopke	Face-to-face

Date	Purpose of Meeting	Mode
January 9, 1990	Staff Development Facilitator Training	TI-IN Network (satellite)
January 11, 1990	New Subscriber Orientation	TI-IN Network (satellite)
January 15, 1990	Star Schools Orientation	TI-IN Network (satellite)
January 15, 1990	General Facilitator Training	TI-IN Network (satellite)
January 16, 1990	Star Schools Orientation	TI-IN Network (satellite)
January 18, 1990	Governance Board Meeting	Washington, DC
January 25, 1990	New Subscriber Orientation	TI-IN Network (satellite)
January 29, 1990	Technical Orientation	TI-IN Network (satellite)
February 2,3, 4, 1990	Mid-Atlantic Regional Leadership Conference in Wilmington, Del	Face-to-face
February 6, 7,1990	Mississippi State University Met with Dr. Gordon Jones, Instructors and Production (Starkville, MS)	Face-to-face
March 1 & 2, 1990	Far View Conference (Denver, Co)	Satellite - PBS Uplink
March 8, 1990	University of Alabama Met with Dr. Jennings Bryant (Evaluation) (Tuscaloosa, Al)	Face-to-face
March 20, 21, 22, 1990	Seventh International Conference on Technology and Education Brussels, Belgium	Face-to-face
March 27, 1990	Western Illinois University Open House	Face-to-face
April 4,5,6, 1990	Governance Board Meeting (San Antonio, Tx) Macomb, Il	Face-to-face
April 9,10, 1990	Presentation at Telecommunication Sub-Committee Hearing (U.S. Senate) "Information Age Technologies and Economic Development" (Helena, Mt)	Face-to-face
April 16,17, 1990	Meeting with Star School sites at Chapter 2 National Diffusion Network Conference (Jackson, Ms)	Face-to-face

Date	Purpose of Meeting	Mo(:)
April 30, 1990	Presentation at Texas Education Agency Governor's Conference (Dallas, Tx)	Face-to-face
June 21, 22, 1990	Governance Board Meeting Denver, Co	Face-to-face
June 26, 1990	National Educational Computing Conference (Nashville, Tn)	Face-to-face
July 17, 1990	School of Experimental International Living (Brattleboro, Vt)	Face-to-face
August 21, 1990	TI-IN Overview for State of Michigan	TI-IN Network (satellite)
September 14, 1990	Presentation at American Society Training and Development (San Antonio, Tx)	Face-to-face
September 21, 1990	Governance Board Meeting (Macomb, Il)	Face-to-face
October 7, 1990	Presentation at BellSouth (Atlanta, Ga)	Face-to-face
October 10, 1990	Presentation at Software Publisher's Assn. Conference (New Orleans, La)	Face-to-face
November 5, 1990	Presentation at TELECON X (San Jose, Ca)	Face-to-face
November 7, 1990	Presentation at National School Board Assn. Meeting (Dallas, Tx)	Face-to-face
November 16, 1990	Presentation at National Council on Inservice Education (Orlando, Fl)	Face-to-face

2.0 DOWNLINK SITE IDENTIFICATION & INSTALLATIONS

The Project goal was to equip a significant number of economically and educationally disadvantaged high schools with satellite-based receiving hardware. This hardware was installed for the objective of increasing access to educational resources delivered via satellite.

A total of 316 sites were identified and equipped with satellite hardware over the two year project. In the first year, beginning in Fall 1988, 243 schools were identified by each Partner. The installation commenced in December 1988, and was completed in March 1989. The identification of the 73 sites for Year Two was completed by April 1988. Upon notification that second year funding was authorized, the installation of second year sites began. The majority of the sites were equipped to enable participation in courses delivered in school year 1989-90. In Year Two, some sites were relocated because a designated school withdrew participation from the Project. See Attachment G to review the location of each site by state/partner.

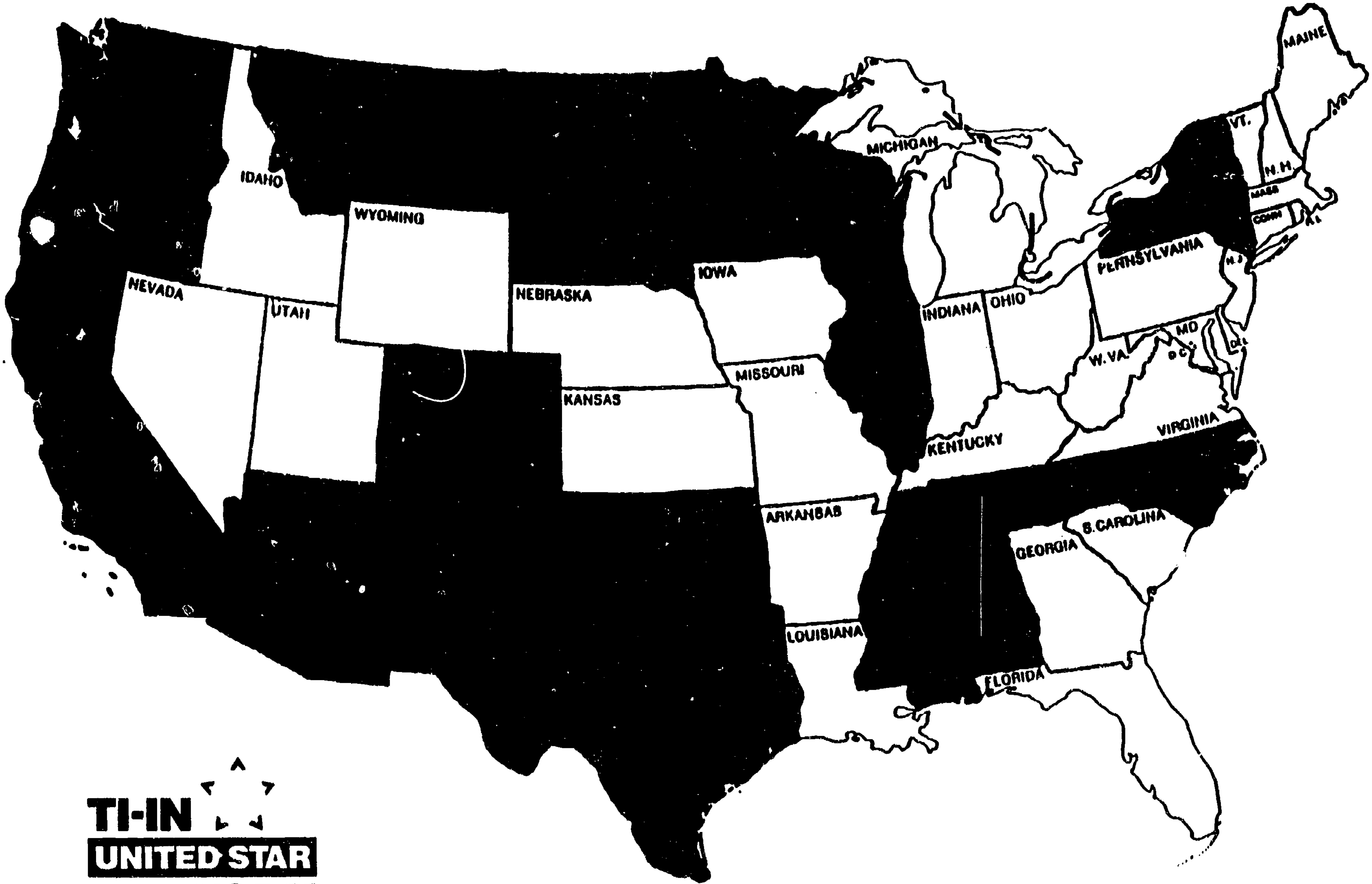
The structure of the Project allowed for installation of all the necessary equipment at no cost to any of the designated sites. Under the grant, the cost of the equipment and installation was funded through each Partner's budget. See Attachment F to review the list of hardware and programming that was made available at no cost to the recipient.

2.1 Overview of Year One and Two Site Identification/Installation. A total of 316 sites were identified by each partner, 243 in Year One and 73 in Year Two. These sites included 17 that were designated by the Bureau of Indian Affairs. They were distributed across 19 states including: New York, Wisconsin, Minnesota, North Dakota, South Dakota, Montana, Tennessee, Oregon, California, Nevada, Arizona, New Mexico, Texas, Oklahoma, Mississippi, Alabama, Illinois, North Carolina, and Washington. See Attachment G for a complete list of the downlink sites, and see the map that illustrates the distribution across the United States.

2.2 Equipment Provided to Schools. Each designated downlink site in Year One was equipped with a Ku-band satellite antenna and an Audio-Video Cart which included: television monitor, TI-IN interface device (to facilitate interaction), satellite receiver, videotape recorder, telephone, dot matrix printer, and electronic writing tablet. For the Year Two sites, dual-band (C-Ku band) satellite antennae were installed instead of the fixed Ku-band ones used during Year One. All the other equipment was the same as installed under Year One.

2.3 Installation Process. The identification and equipping of downlink sites involved a multi-step process which followed: 1) approval of equipment package by Board of Governance and U.S. Department of Education, 2) establishment of selection criteria (i.e., 50% or greater of Chapter 1 population at school), 3) identification of sites by partners, 4) informing sites of equipment and installation package, 5) contracting with each site, 6) acquisition and installation of equipment, and 7) training new users at designated sites.

2.4 Selecting Equipment. The selection of the hardware configuration used for installation was a decision voted on by the Board of Governance and approved by the U.S. Department of Education. For example, the Board voted to install fixed Ku-band satellite systems for the first year. Whereas, the second year they voted to install dual-band (C-Ku-band satellite systems).



TI-IN UNITED STAR NETWORK.

The decision to install fixed Ku-band systems was based on the economics. These fixed sites were installed less expensively than dual-band systems; thus, making it possible for a significantly greater number of downlink sites to be equipped. The U.S. Department of Education recognized the ability to serve a greater number of sites and approved this process.

For Year Two, dual-band C-Ku-band systems were selected and approved by the U.S. Department of Education. This decision was directly related to the increase in programming available to schools using both Ku- and C-band satellite transmissions. During Year Two, the emphasis was on increasing access to academic resources by providing the most flexible systems to sites.

2.5 Guidelines for Selection of Sites. High schools which were identified to participate in the TI-IN United Star Network Project were chosen based on being educationally, geographically and economically disadvantaged (over 40 % were Chapter 1). These guidelines were approved by the Board of Governance. The total number of sites were divided up among the Partners. The following Table outlines the site allocation by Partner.

TABLE ONE: SITE ALLOCATION BY PARTNER

PARTNER	STATE	1988-89 NUMBER OF DOWNLINK SITES	1989-90 NUMBER OF DOWNLINK SITES
University of Alabama at Tuscaloosa	Alabama	56*	0
Western Illinois University at Macomb	Illinois	52	23
Mississippi State University at Starkville	Mississippi	33	19
North Carolina Department of Public Instruction	North Carolina	18**	0
TI-IN Network (86)			
Bureau of Indian Affairs (BIA) Schools	Arizona Oklahoma Wisconsin Minnesota New Mexico Montana Nevada South Dakota North Dakota	14***	0
Colorado		1	0
California		15**	1
New Mexico			1
Oregon		2	0
Washington		1	0
New York		1	0
Tennessee		0	1
Texas Education Agency		37	18
Education Service Center, Region 20		13	10
	TOTAL 1988-89 =	243	TOTAL 1989-90 = 73

***56 sites are reflected in the budget. One was an Indian School physically located in Arizona.**
****One of these sites reflected a Bureau of Indian School physically located in this state.**
*****Three additional Indian Schools were identified in Partner States which brings the total to 17.**

2.5.1 Identification of Sites. Each Partner worked in conjunction with their representative at the State Department of Education to identify sites. The selection process was slightly different across each Partner depending on their needs. Nevertheless, the goal of providing a significant number of Chapter 1 schools with access to instruction using telecommunications media remained the same.

2.5.2. Illinois State Board of Education and Western Illinois University (ISBE and WIU). Western Illinois University and the Illinois State Board of Education mailed out a Request For Proposal. Any school in Illinois, which wanted to be considered, was required to adhere to the guidelines set forth in the application package. Each school was asked to complete an application and sign assurances (see Attachment H). All applications were reviewed by a panel at the Board of Education. Schools were selected based on objective criteria.

2.5.3. North Carolina Department of Public Instruction (NCDPI). Sites were selected by the Department based on their high level of interest and high level of educational need. Most of these sites were identified in the original Star Schools proposal.

2.5.4. California State University at Chico (CSU). Sites in California were selected based on a high percentage of Chapter 1 student population. These selection decisions were made in conjunction with TI-IN Network's Utilization Specialist who was responsible for the California territory. A list of sites was provided to the state education agency.

2.5.6. University of Alabama (UofA). Working in conjunction with the State Department of Education, the University selected sites which were rural and of low economic status. Most of the sites had Chapter 1 populations averaging 50% or higher. The first preference for site selection was given to schools which had participated in the University's BioPreparatory Program. These sites were dispersed across the state.

2.5.7. Mississippi State University (MSU). Sites which participated were part of the University's PREP's organization. PREPS was a quasi non-profit, service organization for which schools pay subscriber fees to. As a group, PREPS served schools by providing evaluation support and acting as a clearinghouse for information. Though MSU was responsible for working with the schools to notify them that they were selected, the majority of the schools were not well informed about the project at the time of installation. A final list of sites was provided to the Mississippi Department of Education by TI-IN.

2.5.8. Education Service Center, Region 20 (ESC-20). Schools within the service area of Region 20 in San Antonio, Texas were selected to participate in the Project. Schools selected were educationally and economically disadvantaged.

2.5.9. Texas Education Agency (TEA). TEA issued a RFP which requested that interested schools apply if they wished to participate in the Project. Schools were selected based on geographic location, high level of interest in participating, and high economic and educational needs.

2.5.10. TI-IN Network, Inc. (TI-IN). Sites selected across several states were identified in the original Star Schools proposal. Several of the TI-IN sites were allocated to and identified by the Bureau of Indian Affairs. During the first year, a list of sites for each state participating in the Project was mailed to state Department of Education contacts in all 19 states.

2.6. Preparing Designated Star School Sites for Project Participation. TI-IN staff mailed information and met face-to-face with school staff to review the goals and objectives of the TI-IN United Star Network. The terms of participation were clearly outlined in the TI-IN United Star Network Fact Sheet. See Attachment F for this Fact Sheet.

2.6.1 Agreement with the Site (LEA's). The terms of participation, as established by the Board of Governance and the U.S. Department of Education policies, were clearly outlined in a written letter of agreement. In summary, the terms of participation included the following: 1) integration of satellite based programming into the school, 2) student and staff participation in TI-IN United Star Network and other TI-IN programming, 3) appointment of a site Facilitator to be liaison with TI-IN, 4) total payment of $3,600 for fees related for TI-IN participation in Year Two, 5) regular use of the technology to increase access to programs, 6) maintaining an inventory list, 7) installing a telephone line and paying monthly fees, and 8) non-use of the equipment for the intent of the grant may constitute removal and relocation to another site.

Each administrator, superintendent or principal, at designated Star Schools sites was mailed the letter of agreement. The school administrator was asked to sign his/her name to verify that they were committed, and understood the objectives of the Project.

2.7. Equipment Acquisition and Installation. TI-IN acquired the equipment and contracted to install the hardware at each school. The process of installation involved a survey of the site to determine the location and installation of the antenna; cabling the building; installing a telephone line; and testing of the technology installed in the classroom (monitor, satellite receiver, vcr and telephone interaction).

2.8. Training Users. Upon completion of the installation, both face-to-face training and satellite-based training were offered to each site. The training by satellite included: 1) Technical Orientations (how to use the equipment), 2) New Subscriber Orientation (overview of programs and services), and 3) General and Course Facilitator Training.

Both modes of training involved answering subscriber questions, and advising them on how to use the technology and implement the programming. Reference manuals, a technical/equipment manual and an Operational Guidelines were mailed to each site for day-to-day problem solving.

2.9 Cost for Schools. TI-IN United Star Network's first priority was to serve schools who were largely economically and educationally disadvantaged. The grant funded the equipment and installation for each designated site. TI-IN Network, Inc., as an in-kind

contribution to the Project, provided at no cost over 400 hours a year of staff development training for each site.

In turn, each school was required to provide support personnel (a site Facilitator), install a telephone line and pay the monthly fee, and pay $3,650 in the second year of the Project. The first year of participation, fees were covered by the grant. Since the funding for equipment and participation costs were generous, the strategy for retention of these sites after the grant period, included financial ownership in the Project over the course of the Project.

All programs which were developed and broadcast using grant funding were offered at no cost to designated Star School sites. As TI-IN was an established distance learning provider before the Star Schools partnership (United Star Network) was formed; each site had access to a wide range of enrichment, staff development and credit courses immediately upon installation. These Star Schools designated sites had access to any TI-IN programming, such as the 20 high school credit courses which were offered over and above the Star Schools funding. Participation in any of the credit courses required a fee per student per course.

2.10 Facilitator Identification. A critical link in the operation of the equipment and programming was the on-site facilitator. Each site was requested to identify an adult to serve in this capacity prior to the installation of the hardware. The facilitator role was established as the liaison between the site and TI-IN. These facilitators were typically responsible for the following tasks: 1) reporting technical problems, 2) monitoring classes, 3) taking attendance, and 4) managing logistics (i.e., duplicating materials, recording grades, returning hardware). There was a positive correlation between how organized, efficient and enthusiastic the Facilitator was with the successful implementation at the site.

2.11 Equipment Inventory Records. In accordance with the requirements of the fiscal agent, TI-IN, along with each partner, developed an inventory list of equipment for each site. These records have been updated three times during the Project. See Attachment K to review the most up-to-date list of sites and inventory records.

3.0 PROGRAM DEVELOPMENT AND DELIVERY OF INSTRUCTIONAL PROGRAMMING

The goal of increasing access to educational resources in the critical subjects of math, science and foreign languages required the development and broadcasting of programs. Program development was accomplished under the grant by all of TI-IN United Star Network partners. Six Partners --University of Alabama, California State University Chico, Mississippi State University, North Carolina Department of Public Instruction, Western Illinois University, Education Service Center Region 20/TI-IN Network -- used existing broadcast (uplink) facilities which enabled the transmission of programs. See Attachment I for a description of Programming provided by Partners.

Collaborative program activities were accomplished with other Star Schools funded projects and other program providers when feasible.

3.1 Philosophy of Program Development. TI-IN Network had been a program provider prior to receiving Star Schools funding. TI-IN offered a wide range of existing programming including: 20 student credit courses, student enrichment programs, subscriber training programs, and over 400 hours of staff development programs. Upon installation of equipment, all designated Star School sites had access to these offerings.

Programs developed under Star Schools expanded rather than replicated or replaced any of the on-going TI-IN Network, Inc. programming options. Under Star Schools funding, TI-IN United Star Network Partners selected programs targeted to either students or teachers in the subjects of math, science and foreign languages. Each programming Partner selected programming which was considered exemplary. All programming topics were agreed upon by the Board of Governance. These were designed to both compliment and expand the entire programming offering. In many cases the program offering had been developed for face-to-face application to serve a small population. For example, UofA's advanced science program, BioPreparatory Institute, provided training to rural students for pre-college preparation in medical studies.

3.2 Cost of Programs to Sites. Any of the sites designated and funded under Star Schools were eligible to participate in programs at no additional fees. There was an exception for special programs which required cost of specialized support materials or if college credit was processed.

For TI-IN programs offered outside the Star Schools grant, all sites could participate in any course for the standard TI-IN per student fee. All TI-IN staff development and student enrichment programming was contributed as an in-kind contribution to the Project; hence all Star Schools sites participated for two years without paying the standard programming fees.

3.3 Volume of Programming and Transponder Used. An estimated total of 11,036 program hours were transmitted over the two years. TI-IN United Star Network transmitted over 2,600 hours of programming on GTE SPACENET II satellite. TI-IN Network, Inc. estimated that it broadcast an additional 8,436 hours of programming over the two year period for its programming.

3.4 TI-IN Staff Provided Technical Assistance. TI-IN was the partner with the experience in programming and working out the broadcast logistics. The Project staff and other TI-IN personnel provided support to each Partner. Acting as program and technical consultants, TI-IN assisted each Partner by: scheduling satellite time, developing, planning and implementing timelines; providing production support and advisement; selecting presenters or instructors; promoting and advertising the programs; working with state certification and accreditation staff; and registering students.

3.5 Programming Developed by University of Alabama (UofA). Over 500 hours of programming were developed and broadcast by UofA within the two year period. As listed below, these included two student credit courses and two teacher training programs. Each program required additional programming time to follow-up and support the curriculum activities.

Programs were developed and delivered over the two year period of the Project. These programming activities include:

	Course/Program	Audience	Broadcast
1.	Japanese I	High School Students	Fall 1989 Spring 1990
2.	Anatomy and Physiology (BIOPREP PROGRAM)	High School Students	Fall 1989 Spring 1990
3.	BIOPREP Teacher Institute	High School Teachers	Spring 1989 Fall 1989 Spring 1990
4.	BIOPREP Summer Teacher Institute	High School Teachers	June 1990 June/July 1989

3.5.1 Development of Direct Student Courses. In Spring 1989, instructional development activities began and included: 1) identification of instructors for student courses in the fall, 2) selection of textbook and materials, 3) scheduling of satellite time for both the summer and fall programs, 4) designing lesson plans for both the fall and summer offerings, and 5) beginning the process for certification of the Japanese and Anatomy and Physiology instructors. In addition, a 30 second videotape and a video logo were produced. The videotape was designed to promote the program offerings that were scheduled for Spring and Summer. The promotion was broadcast over the network.

Project staff worked closely with the Director of the BioPrep Program to work out the logistics of certification, scheduling, etc. In preparation for this programming, the BioPrep Department worked with the Television Broadcast Department to schedule studio time and space.

3.5.2 Identification of Personnel. In February 1989, candidates for the Japanese I and Anatomy and Physiology courses underwent screen tests. Based on the review of the screen test and educational credentials, two instructors were selected.

Mr. Sukero Ito, Assistant Director of the Critical Language Center at The University of Alabama's College of Arts and Sciences and Instructor of Japanese, was selected to teach the Japanese I course scheduled for the 1989-90 school year. Mrs. Marilyn Stephens, a

master BioPrep science teacher teaching full-time at Tuscaloosa County High School, Tuscaloosa, Alabama, was willing to return to the University full time to pursue a doctoral degree in science education. At the same time she accepted an offer to teach the Anatomy and Physiology course for Star Schools during the 1989-90 school year.

Dr. Sukero Ito attended the 41st Annual Meeting fcr the Association of Asian Studies in Washington, D.C. during the week of March 13-17, 1989. He met with Dr. Eleanor Jordon, his colleague from Cornell University, and others involved in the teaching of Japanese.

Mr. Gary Moore, an advanced graduate student in the College of Communication, was appointed as a half-time graduate assistantship to develop computer-based instructional materials for the Anatomy and Physiology course. Mr. Moore had successfully developed similar materials for the College. His appointment continued through the second semester of the 1989-90 academic year.

The BioPrep Program established a working task force to outline the course plan and syllabus for the Anatomy and Physiology course. The instructor began the detailed translation of the existing course into one to be conducted via television. This group consisted of Dr. Larry Rainey, Director the University's BioPrep Program, Dr. Linda Olivet, Association Professor of Nursing who serves as a consultant to the Anatomy and Physiology course, Mrs. Marilyn Stephens, Mrs. Johnnie Skinner, a graduate research assistant in science education, and Mr. Gary Moore.

The Spring of 1989 was spent identifying and training Japanese I and Anatomy and Physiology Instructors. Each instructor began working with TI-IN's Program Manager to establish timelines and procedures required to deliver the course in Fall 1989. Numerous planning sessions were held between TI-IN and the University of Alabama staff. In August, the Instructors attended a teacher workshop in San Antonio with the other TI-IN teachers.

During the Spring 1989, the University's studio was equipped with the necessary hardware that assured the uplink would be compatible to TI-IN's system. Equipment was installed to enable live, interactive programs.

The curriculum and media for each class was modified and adapted for distance learning. Each teacher developed a curriculum guide, lesson plans and enrichment materials.

3.2.3 Support and Management System for Student Courses. Space was allocated for a course management office to support the instruction of the Japanese I and Anatomy and Physiology courses which were broadcast to registered sites. Changes and additions were made to support the Japanese class. Special events and guest speakers were incorporated into both the Japanese and Anatomy and Physiology classes. Three telephone lines, two computers, a rotation of work-study students, a course manager and a volunteer all settled into a space designated for the course management office. This allowed facilitators of the Japanese and Anatomy and Physiology classes at TI-IN sites to reach a teaching assistant

throughout the day. They received information at any time about student grades or missing assignments, as the information was computerized.

Several changes and additions were made to Japanese I in Spring 1990. A new Facilitator Reporting Form was adopted which standardized weekly assignments and the way that information was reported, thus allowing for more efficient data entry. Weekly lesson plans, were transmitted by satellite using hardcopy distribution.

Classes were organized into three groups which rotated being on-air, making a cassette tape of each student translating English into Japanese, and calling for assistance on the Japanese Hot Line (office hours were form 3:00 - 4:00PM CT). A comment form for evaluating the tape was used and returned to each student with the tape. Approximately one third of the homework was returned to the course management office for grading as a means of evaluating written language skills. Homework and test grading was returned to the facilitator along with answer keys for the exercise sheets.

Handouts were developed to assist students with the dialogues by offering a study sheet with the Japanese sentences, the English literal and idiomatic translations. Students found this a valuable study tool as friends and family who did not know Japanese were able to help them study. A glossary of the 50 American states, as written in Katakana, was developed by the teaching assistant.

3.5.4 Accreditation of Classes. In states where formal distance learning applications were required, approvals were sought. These states included Texas and Oregon. TI-IN Project staff processed these applications.

3.5.5 Certification. Teachers, who instructed via TI-IN, were certified in states where students were registered. TI-IN staff worked with each instructor and state agency to process certification applications in states where students registered. As an in-kind contribution, TI-IN paid for the certification application materials.

3.5.6 Registration of Students. To promote the registration of students in Japanese and Anatomy and Physiology, each site was mailed a flyer about the courses. In addition, a description was listed in the TI-IN Program Guide. Though first preference was given to designated Star School sites, all TI-IN subscribing sites were invited to enroll students. A total of 454 students participated in the classes. 233 Japanese students were enrolled. a total of 221 Anatomy and Physiology students were enrolled. See Attachment J to review the list of participants by site.

3.5.7 Japanese Course. During the last two weeks in March, the Japanese students participated in special events associated with the Sakura (Cherry Blossom) Festival celebrated annually in Tuscaloosa. Special programs were developed including a martial arts demonstration and lecture, a display of the kimonos from the Kentucky Museum exhibit, a lecture on the kimono as an art form and the ancient and contemporary significance of wearing kimonos, hands-on demonstrations of Japanese cooking, a discussion of Japanese pottery, and identification of special characteristics of this Japanese art style.

Students were asked to take notes and at the end of two weeks, selected their favorite topic and wrote a short essay explaining what students had learned. Approximately, 60 TI-IN students from seven schools spent March 31 in Tuscaloosa participating in the Sakura Festival. Tours of the campus and studio were held, followed by a Japanese lunch at the Ferguson Center, and a trip to the mall to enjoy exhibits, folk dancing, martial arts and calligraphy demonstrations.

Japanese I

Mondays - Fridays
9:00AM Central CH44 T21
Grade Level: 9 - 12
Prerequisite: None
Credit 1 unit

Emphasis was placed on the spoken aspects of language learning. Students were trained in the basic skills of listening comprehension and of speaking the language correctly. The Japanese writing system using KANJI (characters of Chinese origin) was introduced gradually with reading/writing practices also were conducted.

3.5.8 Anatomy and Physiology Course. During 1989-90 school year, this program interacted a wide range of medical experts. These medical professionals were used to enrich the class.

Anatomy and Physiology

Mondays - Fridays
11:00AM Central CH44 T21
Grade Level: 10 - 12
Prerequisite: Biology (Physics and/or Chemistry recommended)
Credit: 1 Unit

Anatomy and Physiology was designed to introduce students to the intricacy and beauty of the human body in health and disease; to serve as a forum for the application of basic science concepts (e.g. biology, chemistry, physics) to the study of the human body; and to facilitate the development and enhancement of their problem-solving and critical-thinking skills. The course was designed as a hands-on, laboratory-based science, guiding students through a series of carefully structured exercises involving actual medical case histories. Using both deductive and inductive reasoning processes, students studied all the major systems of the body, both anatomically and functionally, health and nutrition, disease processes, health implications of various life-styles, and the major elements of the health care system.

3.5.9 Staff Development Courses. A twelve-hour BioPrep Teacher Institute began the Spring 1989 and was offered in Spring 1990 as well. The following is an outline of the topics covered in the Institute.

DATE	TIME	TOPIC
January 11	3:30 - 4:00PM CT	Japanese Facilitator Session
February 5	3:30 - 5:00PM CT	Touchstones Discussions
February 19	3:30 - 5:00PM CT	Social Studies: "Spirituals and the Blues: Expressions of African-American Reality" in recognition of Black History Month
March 5	3:30 - 5:00PM CT	Chemistry: Lab Procedures and Safety
	4:15 - 5:00PM CT	Physics: Experimental Methods
March 19	3:30 - 5:00PM CT	DNA: Introduction to Cloning
April 2	3:30 - 4:30PM CT	Nursing Careers
April 16	3:30 - 4:30PM CT	Senior English
April 30	3:30 - 4:30PM CT	Biology
May 14	3:30 - 4:30PM CT	Senior Math

BioPrep Teacher Institute
(All Content Area Teachers, Grades 9 - 12)

June 13 - June 29

Tuesdays, Wednesdays, Thursdays	1:00PM - 5:15PM CDT	CH 36 T21
July 5 and July 6	1:00PM - 3:00PM CDT	CH 36 T21
Registration Deadline:	June 1, 1989	

This Program was repeated in Spring 1990.

The first BioPrep Teacher Institute coincided with the annual summer teacher workshops on the campus of the University of Alabama and involved all four "core" disciplines, English, Social Studies, Science and Math, as well as enrichment topics.

The focal point of the English section was the senior level English course. Training in the Advanced Placement of English curriculum was stressed, as well as ways to integrate components into any English class. CZM Associates of Annapolis, Maryland, conducted training sessions for teachers wishing to learn how to conduct special discussion classes. These classes addressed a variety of classroom and instructional objectives by featuring excerpts and translations from classic works of Western thought.

Topics in American Government and Economics were featured in the Social Studies section. In addition, segments of two National Endowment for the Humanities Teacher Institutes which were being conducted on the University of Alabama campus that summer were aired. The topics for these Institutes were "Latin American Society and Culture in the Changing World: Its Significance for the United States" and " The Constitution and the South."

An overview of the BioPrep math curriculum was featured, with a focus on approaches to teaching problem-solving and critical-thinking skills. The senior Advanced Math course was discussed, combining aspects of Algebra review, Trigonometry, Pre-Calculus, and special topics.

For Science, two areas of concentrated training provided:

1. Strategies for teaching the senior Anatomy and Physiology course. Sessions were primarily for teachers wishing to teach the course using problem based curriculum. Some training was provided for schools enrolling students in the Anatomy and Physiology course.

2. An introduction to basic Recombinant DNA laboratory techniques for high school Biology. David Micklos, of Cold Spring Harbor Laboratory, and University of Alabama professors introduced topics and lab strategies for schools wishing to introduce this important topic into their curriculum. Subsequent sessions during the 1989-90 academic year was followed-up on these activities.

The four hour BioPrep Teacher Summer Institute was scheduled and offered on June 11 - 22, Mondays - Fridays, 10:00AM - Noon, Channel 36, GTE Spacenet II, Transponder 21.

DATE	**TIME**
June 13 - 15	1:00PM - 3:00PM CDT, CH36
June 20 - 22	1:00PM - 3:00PM CDT, CH36
June 27 - 29	1:00PM - 3:00PM CDT, CH36
July 5 - 6	1:00PM - 3:00PM CDT, CH36
July 11 - 13	1:00PM - 3:00PM CDT, CH36
July 18 - 20	1:00PM - 3:00PM CDT, CH36
July 25 - 27	1:00PM - 3:00PM CDT, CH36

BioPrep Teacher Institute (Follow-up to Summer Institute)

October 16	4:00PM - 7:00PM	CDT	CH36	T21
October 23	4:00PM - 7:00PM	CDT	CH36	T21
November 6	4:00PM - 7:00PM	CST	CH44	T21
November 13	4:00PM - 7:00PM	CST	CH44	T21

These sessions were held for, but not restricted to, participants of the Summer 1989 BioPrep Teacher Institute. Training continued on: 1) conducting special discussion classes featuring excerpts and translations from classic works; 2) incorporating basic Recombinant DNA laboratory techniques into high school Biology classes; and 3) teaching the course of Anatomy & Physiology using the University of Alabama's problem-based curriculum. (12 hours)

3.6 California State University, Chico (CSU). Chico was the first partner to develop and broadcast Star Schools programming. They began in January 1989. Chico identified and contracted with the faculty to develop and deliver over 350 hours of college credit courses for teachers. These academic courses originated from the CSU uplink studios. CSU was an experienced provider of satellite-based instruction. Faculty utilized the instructional media service to design specialized graphics for the courses. All coordination of handouts, program scheduling, and registration was handled by the TI-IN Project staff.

In addition to the college credit courses, the Partners in Professional Growth Program were developed and broadcast. The orientation sessions for this program were delivered during the Project.

3.6.1 Programs Developed. A total of four college credit courses plus, those grouped under the PARTNERS in Professional Growth programs were offered from January 1989 through Spring 1990. These programs included: Curriculum Development; Staff Development: The How To's, Home School Communications; Mainstreaming; Introduction to Consultation for Special Educators; PARTNERS in Professional Growth.

3.6.2 College Credit for Teachers. The college courses were developed by the College of Education at CSU. These were courses that were identified to help work with students with special education needs. CSU developed a policy which allowed students, who earned credit, to apply those units toward a Masters Degree in foreign language instruction.

3.6.3 Program for Beginning Teachers. The PARTNERS in Professional Growth Program was a series of college credit courses developed exclusively to meet the needs of beginning teachers. The induction program involved beginning teachers at each site teaming up with a tenured teacher. This peer counseling model had been piloted face-to-face during the 1987-88 year. Because the program was so successful, TI-IN United Star Network believed that adapting the curriculum model for televised instruction enabled a greater number of beginning teachers to participate. With the shortest of qualified teachers, retention of beginning teachers in rural schools across the country was believed to be critical.

3.6.4 Program Descriptions. The programs broadcast were listed and detailed below.

Partners in Professional Growth

Beginning teachers were matched with experienced teachers who were trained in peer coaching techniques. Peer coaches earned five units of university credit for the satisfactory completion of program requirements. Beginning teachers earned four units of university credit for the satisfactory completion of program requirements.

EDUC xxx:* Induction for Beginning Teachers (4 units)
EDUC xxx:* Coaching Teachers to Higher Levels of Effectiveness (5 units)

Instructor: Dr. Victoria Bernhardt

Registration Deadline: First Class Meeting
Registration Fees to Enroll in College Credit:
4 units $200.00; 5 units $250.00

August 26*	9:30AM - 2:30PM CDT	CH36 T21
September 9*	9:30AM - 2:30PM CDT	CH36 T21

*Peer Coaches trained during these sessions.

Coaching Teachers to Higher Levels of Effectiveness. These sessions were designed to train experienced teachers how to be on-site peer coaches. Participants used a synthesis of the research on professional teaching to identify teacher strengths and areas for growth. They practiced the verbal and nonverbal skills vital to the conferencing and coaching process which were specifically designed to provide the greatest opportunity for improved teaching and long-term internalization of successful professional teaching skills.

October 7 9:30AM - 2:00PM CDT CH36 T21

Classroom Management: Creating a Positive Classroom Environment. This session focused on teachers' verbal responses to student behavior and the impact of those responses on the learning environment. The learning skills presented were designed to increase motivation as well as decrease confrontation. Participants practiced verbal interactions which were designed to lead students in a more positive and constructive direction, while reducing the number and severity of confrontations when dealt with off-task or inappropriate student behavior. Examples deal with both instructional and behavioral interactions as well as home-school communications.

November 4 9:30AM - 2:00PM CST CH36 T21

Developing and Implementing a Discipline Plan. Teacher discipline styles ranged from power-keeping to power-sharing and power-giving. Participants evaluated their current style of classroom discipline. Various theorists and educators' approaches to classroom management were examined. By comparing their own discipline style to the management approaches presented, participants gained additional strategies, increasing the number of options for responding to negative student behavior.

December 2 9:30AM - 2:00PM CST CH36 T21

Classroom Management: Understanding Your Power and How to Use It. The focus of this session was on how successful teachers exert their power as professional teachers. Participants explored and identified their talent in the areas of humor, nonconfrontation, fairness, and congruence. They learned skills to support the use of their talents as each worked with whole groups and individuals in the classroom.

Please Note: Partners in Professional Growth continued in the spring semester with the

following topics: Time Management (Jan. 6), Coaching Teachers to Higher Levels of Effectiveness (Jan. 20), Student Evaluation and Motivation (Feb. 3), Teaching Students Who are at Risk (March 3), Conferencing Skills with Parents and Colleagues (April 7), and Teacher as Instructional Leader (May 5).

<u>College Credit Courses</u>

EDUC 241: Mainstreaming (3 Units)

Tuesdays
6:00PM - 8:50PM CDT*
Channel 36, Transponder 21
August 29 - December 19
*Daylight Savings Time ends on October 29, 1989
Instructor: Joni Samples

Registration Deadline: First Class
Registration Fee to Enroll in College Credit: $150.00

This course provided an overview of federal and state requirements regarding the exceptional child. Focus was on practical knowledge, skills, and instructional practices for teaching handicapped students in the regular classroom.

EDUC 348D: Introduction to Consultation for Special Educators
(1 Unit)

Saturdays
11:00AM - 5:00PM CDT
Channel 36, Transponder 21
September 16, 30 and October 14
Instructors: Mary Chihak Jensen, Ph.D., Jeannette Daniel, M.A.

Registration Deadline: First Class
Registration Fee to Enroll in College Credit: $50.00

Special educators nationwide who have experimented with forms of indirect service to exceptional students through consultation with regular classroom teachers. This course presented a model for a co-equal consulting relationship and guided participants through the application of the model to their own school settings.

Session I: Rationale for indirect service mod... in special education; overview of alternate models; research and commentaries, arguments for and against indirect service models; triadic model of consultation; process of collaboration - establishing rapport and contracting with consultants.

Session II: Readiness for change; process of collaboration - interaction patterns, data gathering, feedback; diagnosis and problem-solving.

Session III: Evaluation and redesign in consultation; resources for consultants; the Great Debate - Direct or Indirect Service for Exceptional Students?

Text: None required; course handouts were mailed to registered students. Additional readings were recommended.

EDUC 335T: Foreign/Second Language Education: Testing and Assessment Practices
(3 Units)
Thursdays
6:00PM - 8:50PM CDT*
Channel 36, Transponder 21
August 31 - December 14 (excluding holiday: November 23)
*Daylight Savings Time ends on October 29, 1989
Instructor: Dr. Hilda Hernandez

Registration Deadline: First Class
Registration Fee to Enroll in College Credit: $150.00

This course was designed for foreign and second language teachers interested in the measurement of language skills and proficiency. Teachers explored different formats for assessing, as well as diagnosing and evaluating listening, speaking, reading, and writing skills. These included model testing techniques which incorporate contextualized formats and natural language. Teachers had an opportunity to examine a variety of assessment instruments and techniques (formal and informal), and to apply new insights in the development of materials for their own classroom use.

The College of Education at California State University, Chico, offered a Master of Arts degree program with emphasis in Foreign Language Education. This course applied towards that program.

3.7 Education Service Center, Region 20 (ESC-20). ESC-20 was the primary provider of TI-IN programming. TI-IN and Region 20 had formed a working partnership in 1985 at the inception of TI-IN Network. In addition to on-going programming activities developed prior to Star Schools, ESC-20 developed 800 hours of TI-IN United Star Network programming. These were credit and non-credit programs targeted for students. Three high school credit courses--Algebra II, Spanish III, Physical Science--were developed. Three non-credit student Institutes for math, science and foreign language careers were offered.

3.7.1 Development of Academic Student Courses. The first courses taught were Algebra I and Physical Science during Summer 1989. These were developed from Fall 1988 through Spring 1989. Original plans included the development of a French III class however, these plans were canceled due to low enrollment. Both Physical Science and Spanish III were broadcast during 1989-90 school year, too. Spanish III was a newly developed course while, Physical Science had been field tested during Summer 1989.

3.7.2. Identification of Teachers. Teachers were selected by February 1989. Each candidate was evaluated on the basis of a screen test and their credentials. The Algebra II teacher, Fritz Norman, was an existing math certified TI-IN teacher. David Marshall was hired to instruct the Physical Science class. Susan Altgelt was an experienced TI-IN Spanish teacher. She was hired to develop and teach Spanish III.

3.7.3 Curriculum Development. The curriculum for Spanish III was written and approved by the Texas State Department of Education during Summer 1989. Since TI-IN had devised a plan for Algebra II, these curriculum guides were revised and modified.

3.7.4 Using a Videodisc with Physical Science. The Physical Science class was unique in its videodisc component. The Physical Science curriculum was approved by the Texas Education Agency and developed by the Texas Learning Technologies Group (TLTG). This highly researched and tested curriculum, included a manual and an integrated videodisc component rather than a textbook. Typically this application was used in a face-to-face classroom.

Delivering this curriculum by satellite was an experiment for both TLTG and TI-IN. Modifications for Star Schools included: 1) training of the TI-IN teacher in the curriculum and use of the videodisc, 2) installation of the necessary equipment in the studio, and 3) using the TI-IN teacher as the sole operator of the videodisc with each student receiving the manual. The video segments and branching questions were designed to provide examples of complex and/or dangerous laboratory concepts. This was an excellent tool for the TI-IN teacher.

3.7.5 Development of the Career Guidance and Foreign Language Institutes. Two guidance programs were developed to prove students information on careers in math and science. Jo Ellen Leinbach was hired to moderate and develop the series which was twenty hours (ten math and ten for science) long. In the second year, the series was reduced to five hours (5 hours for Math and 5 hours for Science).

The Guidance Counseling Institutes in Math and Science included the development of the curriculum. Remote, on-site shoots of 10 individuals in different careers or daily living situations involving math and science were completed and included in the course content.

The 10 scheduled hours of the Foreign Language Alternatives Laboratory were taught. The instructor designed the course so as to emphasize the importance of learning a foreign language in our world today. Vignettes illustrating the use of the language in different every-day settings were developed. One of these included an interview with a bilingual Federal Judge and "mock" legal proceedings in English and Spanish. Living in a foreign language country was explained by the Experiment in International Living.

3.7.6 Courses and Institutes. Below lists the specific courses and Institutes.

SUMMER 1989 STUDENT COURSES

ALGEBRA II

Grade Levels: 9-12
Prerequisites: Algebra I (with either concurrent enrollment or completion of Geometry)
Credit: 1 unit

June 12 - August 8	
Mondays and Fridays	9:00 AM - 11:45 AM CDT CH 36 T21
	12:30 PM - 3:30 PM CDT CH 36 T21
Tues/Weds/Thurs	9:00 AM - 12:30 PM CDT CH 36 T21

Algebra II extended, enriched, and reinforced concepts introduced in Algebra I. The emphasis was on the structure of Algebra with some applications. Foundations for Trigonometry, Precalculus, and Analytical Geometry was continued.

Topics addressed included properties of real numbers, equations and inequalities, functions and their graphs, polynomials, rational algebraic expressions, roots and exponents, quadratic functions and equations, exponential and log functions, sequences and series, matrices, and trigonometric functions.

PHYSICAL SCIENCE (LAB REQUIRED)

Grade Levels: 9-12
Prerequisites: None
Credit: 1 unit

Summer Schedule

June 12 - August 8	
Mondays	9:00 AM - 12:30 PM CDT CH44 T21
	1:00 PM - 3:30 PM CDT CH44 T21
Tues/Wed/Thurs	9:00 AM - 12:30 PM CDT CH44 T21
Fridays	9:00 AM - 12:30 PM CDT CH44 T21
	1:00 PM - 3:15 PM CDT CH44 T21

Fall Schedule

Mondays - Fridays	1:30PM CDT CH 36 T21

The Physical Science course provided for the study of Chemistry and Physics. Major goals for this laboratory course were: 1) to prepare students for academic and professional advancement in the sciences, 2) to increase scientific literacy with emphasis on science, technology, and society, 3) to prepare students for improved living and coping with an increasingly technological world.

Students were taught using sequenced curriculum, developed and researched by the Texas Learning Technologies Group. Interesting and highly motivating vignettes, which illustrate scientific principles were infused into each lesson by integration of videodisc technology. Forty percent of this course included laboratory exercises.

Spanish III

Mondays - Fridays
2:30PM Central CH 36 T21
Grade Levels: 10 - 12
Prerequisites: Spanish I and II
Credit: 1 unit

This course emphasized vocabulary development, reading comprehension, further development of oral skills, and simple composition. Basic grammar structures were reviewed, including indicative and subjunctive moods and simple and compound tenses, as well as more advanced grammar structures. Students were introduced to the poetry and prose of well-known Latin American and Spanish authors both adapted for classroom use and using original test. Further study of Spanish culture and history was included.

3.7.7 Enrichment Programming. The *Guidance Counseling Institutes* in Mathematics and Science addressed the following topics and possible career vignettes: color (interior designer, visual artist, light technician); light (photographer, electrical engineer, scientist who works with lasters); body machine (podiatrist, beautician); computers (professor of computer science, computer programmer, electrical engineer); and daily living (parent, homemaker). The Guidance Counseling Institutes in Math and Science were offered for ten hours each in Year One but shortened to five hours each in Year Two.

The *Foreign Language Alternatives Lab* introduced students to the languages of Spanish, French, Latin and Japanese.

Below lists the specific schedule for fall and spring.

Guidance Counseling Institute in Science

Thursdays
2:30 - 3:30PM CDT
Channel 52, GTE Spacenet II, T22
October 5 - November 2
*Again in Fall & Spring 1989-90

Guidance Counseling Institute in Mathematics

Wednesdays
2:30 - 3:30PM CST
Channel 36, GTE Spacenet II, T21
January 31, February 28
*Again Fall & Spring 1989-90

The Guidance Counseling Institute provided an inside look at a wide variety of career options. Have you ever wondered what it's like to be a fashion designer, a telephone engineer, or a restaurant owner? One had an opportunity to talk with various professionals about their career choices and discuss the academic requirements which supported these career decisions. Not only were the sessions informative but, they were also fun with brain teasers introducing each session and testing your knowledge of trivia facts.

Foreign Language Alternatives Lab

Wednesdays
2:30 - 3:30PM CST
Channel 36, GTE Spacenet II, T21
March 7 - May 16 (excluding Spring break March 21)
*Again Fall & Spring 1989-90

Foreign Language Alternatives Lab explored the nature of other languages and cultures. This course introduced you to Spanish, German, French, Latin and Japanese. You were able to examine their own interest and aptitudes as you explored the relevance of studying these foreign languages.

3.7.8 Making Programs Accessible to Hearing Impaired. An interpreter was a part of these Institutes to provide signing for the hearing impaired or deaf student.

Academic Student Courses. Teachers were selected for the summer courses of Algebra II and Physical Science. David Marshall was a new teacher hired to instruct Physical Science. The installation and testing of equipment for the Texas Learning Technologies Group (TLTG) Physical Science interactive videodisc curriculum was completed. Facilitator training was held for summer courses with courses began on June 12.

The interactive videodisc based curriculum developed by Texas Learning Technologies Group (TLTG) was used in Physical Science. The videodisc technology was delivered through the Satellite Network and operated by a TI-IN teacher. This demonstration course indicated that the combination of strong production values helped students to maintain the interest of an motivate students. Given the length of the summer courses each day (4 hours), the motivational aspects of the vignettes appeared valuable in student learning.

3.8 Western Illinois University (WIU) and Illinois State Board of Education (ISBE). WIU was the designated uplink site for the State of Illinois, programming development and planning was done in collaboration with ISBE. Numerous programs were funded by ISBE. Regular teleconferences between ISBE and the sites were developed over the two year period. Programs developed under the grant were non-credit

courses targeted to students, teachers and school administrators. It is estimated that 200 hours were broadcast from the WIU uplink. This Project was the first time that Western had ventured into program uplinking.

On January 18, 1989 the seven-part Career Visions series began its broadcast schedule from Western Illinois University. The Salut la France series for students began on January 9 and for teachers on January 31. Production and presentation began for the staff development program, Gifted/Talented Education, on February 27. The following details each program and the activities involved during the second quarter.

3.8.1 Career Visions. The spring semester of this series began on January 18. A handout packet was developed to support each program and distributed to sites upon registration or upon request. Reference Attachment I to review the outline for this series and the handout materials available to participants. This series continued in the 1989-90 school year.

3.8.2 Salut la France. Presented by representatives from the French Cultural Services, this series was structured for both students and teachers. It provided supplemental educational materials in support of French classes by offering information concerning French society, science, art and summaries of world news. The program was presented completely in French. Four and one-half hours of programming were presented for students during the second quarter. Reference Attachment I to review the TI-IN United Star Network Spring 1990 brochure detailing these programs.

3.8.3 Gifted/Talented Education. This seven-hour staff development program began on February 17, 1989. Reference Attachment I to review the flyer detailing topics covered during this series.

3.8.4 AP English Literature Course Developed. ISBE funded WIU to extend its programming offering to include an Advanced Placement course. After surveying their sites, English Literature was the subject that was selected and developed. The development was done in conjunction with the College Board in Chicago.

The selected instructor was Marilyn Voss, a certified English and Drama teacher. To help her prepare the curriculum, she attended a one week training session on strategies for developing and teaching Advanced Placement courses. The development occurred during Summer 1990. TI-IN Network worked with Ms. Voss on state certifications and course accreditation.

The course was offered in September 1990. A total of 149 students in 10 states participated in the course. Sites in Illinois were able to participate without paying any fees.

3.9 North Carolina Department of Public Instruction (NCDPI). The NCDPI's Media and Technology staff developed over 100 hours of staff development programs. The primary program development effort was a series entitled, *Foreign Language in the Elementary School*. In addition, NCDPI conducted several special

informational video teleconferences. For sites in North Carolina, state agency teleconferences were developed for the subscribing schools located in the state. These programs informed schools about state policies.

3.9.1 Foreign Language in the Elementary School. A total of 750 teachers participated in this program. Approximately 450 individuals registered for programs offered in 1990. All total, 59 sites (55 sites in North Carolina, 2 in Illinois, 1 in Texas and 1 in Iowa) registered. During the Summer 1989, 300 participants registered. Reference Attachment J to review the roster for this program.

3.9.2 School Television/Distance Learning by Satellite: What Works. This special teleconference was broadcast on February 8, 1990, and focused on staff development uses of DPI's School Television Program (open broadcast) and the Distance Learning by Satellite Program, which includes Star School activities. The audience extended outside of North Carolina borders with one caller from South Dakota.

3.10 Mississippi State University (MSU). Four staff development college credit courses were developed as part of Mississippi State University's partnership agreement. MSU conducted an evaluation of its courses, too. See Attachment I for more information.

3.10.1 The Junior High Science Teacher Institute. This college credit course was held on January 10, 1990. The last session included a discussion of science fairs and featured three outstanding guests, all of whom were involved in science fairs for many years and whose experience extends to statewide, national and international competitions. Those guests included: Dr. Herbert M. Handley, Distinguished Professor, Mississippi State University; Mr. Larry Bellapanni, Assistant Professor, University of Southern Mississippi; and Mr. Larry Hill, Science Fair Director and Director of Engineering Services, Mississippi State University. In addition to interviews with these specialists, footage from a science fair was shown to illustrate various points about successful science fair competition.

Of the seven students enrolled for graduate credit, six students turned in excellent work, performed well on the objective tests and maintained frequent contact with the instructors. Using the pre-established evaluation plan, these students received grades of an "A". One student did not turn in the required assignments which counted 50% of the total grade. Despite repeated discussions between the student and the instructors regarding this situation, the student received a failing grade.

At the conclusion of this course, an evaluation form assessing the course was sent to all students. This questionnaire assessed instructional aspects of the course such as the appropriateness of the objectives, lesson content and organization, production quality, support materials, usefulness and suggestions for improvement. Results from the course evaluation were very positive. Reference Attachment M to review the evaluation form and responses received. The positive feedback, plus the high level of success on the objective-based exams, attested to the success of this course.

3.10.2 Demonstrations and Concepts for Physics Teachers. During the Fall 1989, the

instructor, Dr. Harpole, developed the course. On January 25 the Physics course was broadcast. The staging set was redesigned to incorporate the appropriate logo for physics. An exciting course introduction was developed featuring interesting graphics and video footage. One week prior to the telecast a dress rehearsal was held to acquaint the new crew with Dr. Harpole's needs during the broadcasts. Thirty students were enrolled for graduate credit.

Each week a variety of activities and teaching content was presented. A special emphasis was placed on the use of inexpensive materials. In addition to the demonstration, there were special guests, such as a high school physics teacher presenting an experiment from the studio and an interview with Dr. Lee Bolen, a physics professor from the University of Mississippi. Special pre-taped segments showing Dr. Harpole demonstrating an activity or working with high school students were also incorporated. Films such as Zero g from NASA and film footage from Six Flags over Georgia's Mindbender roller coasters were also contributed to the variety of the programs.

Plans were being made for conducting a live broadcast from the National Science Teachers Association Convention in Atlanta on April 5, 1990. This special activity featured many highlights including interviews with the Executive Director of NSTA, a Presidential Award Winner, and National Science Foundation representatives. Special exhibits and interviews with students enrolled in the class who were attending the convention were also included. MSU used its mobile uplink facilities to accommodate this teleconference.

3.10.3 Earth Science. Course information was distributed in the Program and Course Guide Spring 1990 regarding this college credit course. Prior to the premiere of this course on January 23, 1990 much planning was involved in securing rock samples, taping footage in Washington state, and obtaining slides from many geographical areas. The staging set was adapted to meet Dr. Caputo's needs and featured a large earth logo. The course introduction was developed from aerial shots of land formations and of Dr. Caputo examining samples in the field. Fifteen students were enrolled in the class for credit.

The foci of this course was to: broaden students' knowledge of geology by introducing it as a well-integrated science class with multiple applications; demonstrating the value of geology in daily living; and exploring the natural processes which control the shape of continents and land surfaces in different regions of the earth.

In addition to using special footage from the States of Washington and Mississippi, Dr. Caputo used slides from the Bahamas, Utah, Arizona, South Carolina, California and Colorado.

3.10.4 Theory of Equations. The last college course to be offered was a math course for secondary teachers. The course aired in June, 1990 with registration required by May 7. Reference Attachment I to review the flyer sent to subscribers regarding the summer session. Additionally, a special mailing was sent to all 2000 math teachers within the state of Mississippi. The labels for this mailing were purchased through Information Services of the Department of Education. Reference Attachment I to review the special

flyer sent specifically to this target group. A video promo featuring the instructor, Dr. Jerry Reed, was completed and aired beginning the first of April.

3.11 TI-IN Network. TI-IN developed and sponsored special teleconferences which were funded under the Project. TI-IN programming was broadcast from their studios located at Education Service Center, Region 20. These programs included orientations, open house, information dissemination activities and special teleconferences.

3.11.1 Star Schools Orientation. This program was developed and broadcast to inform each site about the goals and objectives of the Project, and the technology. The Director and Program Manager conducted these live sessions. All Star School designated sites were invited to participate in these sessions and ask questions.

3.11.2 Paying for College. The first of the two-part series, Paying for College, was broadcast from Old Dominion University in Norfolk, Virginia. The series, Education in the Year 2000, also broadcast from Old Dominion University, began during the second quarter of Year Two. The first part of this teleconference Scholarship and Other Financial Aid Programs was broadcast on January 22, 1990. Reference Attachment I to review the flyer sent to sites regarding this broadcast. Handout materials were also sent to registered sites. The response was overwhelming with 838 individuals responding from 51 sites. In addition to these individual registrants, 17 additional sites did not list names but noted they intended to provide this videotape to their junior or senior classes. The second part of the series, Exploring Alternative Financing Options, was offered on April 2, 1990, 6:30-7:30pm CST, Channel 44, GTE Spacenet II, T21.

3.11.3 Education in the Year 2000. This series was scheduled as a videotape rebroadcast with the first program airing on February 16, 1990. Reference Attachment I to review the flyer sent to sites announcing this program. Nationally known educators, administrators and researchers such as Dr. Madeline Hunter, Dr. Gordon Cawelti and Dr. Howard Gardner, were involved in panel discussions.

3.11.4 Collaboration with TERC Star Schools Project. TI-IN and TERC collaborated on a pilot test of using the TERC science computer software and hardware curriculum for a TI-IN satellite course. TERC's model of implementation typically involved face-to-face training of a classroom teacher in the use of computer-based curriculum. In turn, the teacher agreed to teach other teachers and integrate the components in the classroom.

In the TERC/TI-IN collaboration, TI-IN's Physics teacher, Ruth Speer, attended the University of Virginia's face-to-face TERC training sessions. Star Schools designated sites which enrolled students in Physics were equipped with computers and modems, and the TERC software and hardware. The Physics teacher conducted special training sessions by satellite to teach students in the use of the technology. Eventually, teacher and students were able to communicate through electronic mail. Participating students received extra credit by conducting TERC's computer-based science experiments.

3.11.5 Bureau of Indian Affairs Teleconference. The Assistant Secretary of the Interior and several staff persons conducted a two-hour teleconference targeted to issues pertaining

to all of the 17 BIA schools equipped under Star Schools. TI-IN staff coordinated the teleconference.

3.11.6 Other Special Teleconferences. On an as needed basis, TI-IN coordinated and developed other special event teleconferences. These were designed to enrich the on-going programming developed and offered by the Project.

3.11.7 Demonstration Teleconferences. When required, TI-IN staff conducted live, interactive programs designed to inform users about TI-IN technical and programming options. For example, Fall 1988, TI-IN delivered a live, demonstration program to a group of potential sites located in Mississippi.

3.12 Texas Education Agency (TEA). TEA developed and broadcast monthly teleconferences. These were designed to inform Texas sites about policy changes and important information from the agency. In addition, a TEA staff member from the division of Technology conducted a series to train teachers and administrators how to use the computer-based service known as the Electric Pages/Special Net. All programming was uplink from the TI-IN and ESC-Region 20 studios in San Antonio.

4.0 CHALLENGES RELATED TO IMPLEMENTATION OF TI-IN UNITED STAR NETWORK.

The demonstration aspect of the Project included overcoming many unanticipated problems which challenged the Partnership. Many were issues encountered in general with implementing distance learning. Other issues were specifically related to implementing this Star Schools Project. A summary of the challenges were reviewed in this section with the hope that these may help other organizations avoid problems.

4.1 Identification of Designated Sites. The process of site identification was very political. Schools who were not selected to participate in the Project commonly complained to the state agency of education. When the state agency of education and the TI-IN United Star Network Partner worked together to identify the sites the process was lengthy. Typically, schools were asked to complete applications which were judged using objective criteria (i.e., economic status, percentage of Chapter 1 students served, etc). The slowness of this process resulted in some sites being identified several months after the award was granted. This slowed down the overall installation schedule.

4.2 Couldn't Give Away the Technology. A handful of schools when asked to participate in the Project rejected the terms of participation. There were two primary reasons for this rejection: 1) some believed that by equipping a school at no cost meant that other "hidden costs" would surface, especially as this was a federally funded project, and 2) some rejected the whole concept of change and innovation stating that "things were fine as they were."

4.3 Serving Disadvantaged Schools Created Problems for On-Going Use.

TI-IN United Star Network partners were very conscientious about identifying sites which were educationally, economically and geographically disadvantaged. These same schools were provided at no direct cost both equipment and programming funded through the grant.

In most cases neither equipment nor programming were affordable before the Star Schools Project.

Ironically, these same schools with the high needs were sites that would have difficulty surviving after the funding was withdrawn. As the poorest schools in the nation, many were unable to pay student course fees and the annual network fees. Additional state subsidy and/or adequate planning within their limited budgets were required for long-term use of the technology.

Examples of grassroot attempts to support distance learning included such activities as, raising money for course fees through candy sales, car washes, contributions from the Rotary or Lions Clubs. In some cases, parents paid the course fees directly to enable their son or daughter the opportunity to enroll in an advanced level course.

Some sites were unwilling to continue with the Project. Many of these sites willingly agreed to allow TI-IN to relocate the hardware to another school.

4.4 Timing of the Project. The beginning of the grant year, October 1, 1990, fell after the school year began. This made it difficult to install sites and develop academic programs to serve students and teachers for the first year. The Project began to broadcast programming developed by the grant in January. The majority of the programming which was made available to each Star Schools designated sites was provided as a result of TI-IN's pre-existing programming which was over and above the Project.

4.5 Quality Control. A major management issue related to program transmission was that of creating a consist visual look and program quality across the Project. Each uplink used the TI-IN United Star Network videologo at the beginning of the program and closed with a videologo which identified the U.S. Department of Education.

While broadcast standards and interactive teaching strategies were discussed at great length, each of the six partners with uplink (broadcast) facilities had various studio configurations and notions of what was appropriate. TI-IN staff made every attempt to correct gross problems and provide constructive feedback to instructors and producers.

Half of the program providers were novice programmers and had only recently equipped their uplink studios. This compounded the consistency problem. There was a learning curve on course production that required a period of learning by trial and error. Even those with programming experience, were locked into a model of presenting the visual and instruction which were not always acceptable to the TI-IN staff. By the close of the Project the production was more consistent.

4.6 Model of Instruction for Institutions of Higher Learning Create Problems. As many of the partners were from colleges and universities, the model of a professor lecturing to students was a preferred one. When professors were used as presenters they were consistently not adequately prepared to engage the viewing audience and facilitate any interaction. Materials were required to be modified and adapted to instruct via satellite.

A few universities preferred to have a live studio classroom with students present. Typically, a presenter in this arrangement maintained a majority of eye contact and discussion with the face-to-face students. This usually was a disaster because other remote viewers felt as if they were "eavesdropping" on the class rather than active participants.

4.7 Successful Site Implementation Correlated to Partner. For TI-IN Project staff, communication with the Star Schools sites was of paramount importance. Every Partner assumed the role of centralizing the information dissemination process to sites within there geographic location. However, two Partners filtered information for their benefit rather than for the sites because of political reasons. This filtering did not always benefit sites. While the Project staff worked to correct the situation the damage was done, sites were more likely to be either confused or disbelieving as greater credibility was ascribed to these entities within close proximity to the sites.

When a communications misunderstanding arose, TI-IN Project staff were frequently used as scape goat. This occurred in spite of the fact that the Board of Governance established policies, procedures and strategies of implementation.

4.8 Partner Jumped Ship. One partner, who developed programming, did not actively participate in the Partnership during the second year. This included not attending Board meetings. All written and financial information were completed and mailed in accordance with the terms of the TI-IN United Star Network agreement. After developing the courses funded by the Project, the Partner began to market his/her programs directly to the sites and broadcast its offerings in collaboration with another distance learning provider.

It was an unfortunate occurrence but was indicative of turf issues which may arise in implementing any innovation. Developing new TI-IN Network competitors, as the Partners became more proficient at programming, was always a potential outcome of the Project.

4.9 Collaboration with Star Schools Projects. TI-IN was open to working with other funded projects. This was only possible when the willingness to share information and work together were reciprocated by other Projects. The TERC/TI-IN collaboration was an excellent example of a successful venture where the goals of the two Projects were blended to expand student instruction.

4.10 Short Time Frame for Implementation of the Project. TI-IN United Star Network was a huge project to implement in only two years. Despite the successful completion of the Project goals, it was unrealistic to sustain an on-going implementation

strategy for school sites and programming partners when the funding ended. Studies have shown that a minimum of three years was required for an innovation to be diffused much less institutionalized. Successful implementation required on-going communications with sites and funding after the funding.

4.11 Student Test and Tally Device (STAT). In the original proposal, TI-IN had planned on implementing keypad technology to enable students to be quickly polled on their responses to multiple choice questions. By Summer 1989, the Board of Governance voted to withdraw the implementation of this hardware because of high costs and non-performance by the manufacturer.

Following the grant award, the development of the STAT device began. However, two critical factors entered into the equation. First, the actual cost of implementing the device was greater than once quoted by the manufacturer. The new costs required TI-IN to contribute thousands and thousands of dollars extra to the Project. Second, the manufacturer, whom TI-IN contracted with, was consistently behind schedule for delivering the actual hardware.

4.12 Transponder Costs Increase. Distance learning by satellite was found to be an expensive endeavor. These costs were increased by the end of Year One when a shortage of the Ku-band satellite transponders developed. This shortage translated into higher costs for programming providers. Unfortunately, Ku-band frequencies were more widely used by providers of educational programming. Eventually, these high costs were either passed on to users or absorbed by the providers.

4.13 Teacher Certification Problems. All teachers who instruct on TI-IN were certified in the states where students registered. Though TI-IN paid for all the fees and processed the applications for certification, each instructor was required to meet the standards in the individual states. Requirements ranged from test taking to blood tests.

Certification was an expensive and time consuming activity for TI-IN. The requirements from state to state were found to be very different. National standards regarding certification of distance learning instructors were recommended to the appropriate state agencies and national education organizations. This problem has been in need of a solution.

4.14 Accreditation of Courses. A few states developed policies and procedures for accrediting distance learning courses. However, these policies, like that of teacher certification, differed greatly from state to state. In some states, the evaluation rigor was far greater than for regular classroom instruction. Often the evaluation had a large subjective component based on a panel viewing one or two tapes to determine the amount of interactivity facilitated in the class.

4.15 Lack of Teacher Training as it Relates to Media. Most teachers know very little about using media as an important component in education. Even TI-IN teachers were neither prepared nor equipped with the techniques for adapting and modifying curriculum for live, interactive satellite instruction.

5.0 PROJECT EVALUATION

There were two types of evaluation activities. The primary one involved the contracting of an external evaluator. The secondary evaluation which was conducted by each Partner as it related to the development and transmission of programming. See Attachment M to review the written evaluation reports which were submitted.

5.1 External Evaluation. TI-IN United Star Network contracted with Dr. Jennings Bryant, a professor at the College of Communications at the University of Alabama at Tuscaloosa, to evaluate the two year Project. The first phase of the evaluation was designed to pilot the data collection instruments and conduct a qualitative evaluation of the Summer 1989, program offerings. The second phase included the use of refined data collection instruments and interviewing and observational techniques to evaluate the Project's goals and objectives.

The evaluation was conducted between January 1 - May 30, 1990, with Summer 1990 devoted to conducting any follow-up tests that might be needed and to preparation of reports. Several components of the evaluation were targeted directly toward students in the high school credit courses.

5.1.1 Quantitative Assessment of Student's Learning. For each of the four TI-IN United Star Network student courses taught during the Spring 1990 term -- Spanish III, Japanese I, Anatomy & Physiology, and Physical Science -- a comprehensive examination assessing information acquisition and application of generalized knowledge of course content was prepared. The teacher of each course was asked to review and edit the penultimate version of each instrument. The examination items were randomly divided into two forms, with approximately one-quarter of the items serving as a pre-test, and with the remaining three-quarters serving to form a post-test instrument. The pre-test was administered during the first of the term; the post-test at the end of the term. The entire student population was tested, one-quarter served as a pre-test only group, one-quarter served as a post-test only group, and one-half received both pre- and post-test evaluations of information acquisition.

In at least one instance a course (Anatomy & Physiology) was to utilize a naturalistic field experimental design to supplement the pre- and post-test assessment. In addition to typical TI-IN classrooms, it was possible to compare classrooms that use the program on videocassettes (with no potential for interaction), and classrooms that utilized essentially the same content and resource materials but without television programs.

5.1.2 Student Perceptions of their Learning and their Subjective Assessments of the Educational Effectiveness of TI-IN United Star Network Programs. Students' opinions of their tele-educational learning experience was assessed. This included determinations of how much they think they have learned; their attitudes toward what they have learned; and their perceptions of how these and similar technologies can be used to improve their learning environment.

5.1.3 Student Morale and Motivation. Additional items derived largely from Sweeney's *Iowa State University School Improvement Inventory*, were included to determine the effects the specific TI-IN programs and the interactive TI-IN learning process had on students' motivation and morale. The factors addressed included self-esteem, sense of efficacy, self-control, achievement orientation, and collegiality.

5.1.4 Assessment of Program Quality. Students were asked to rate the quality of various dimensions of the programming. Obvious inclusion related to their judgments on several dimensions of their teachers and their pedagogy, but assessments of format and production were included also. A separate set of questions assessed their perceptions of their facilitators.

5.1.5 Assessments of the Technology. How well the technology served student needs was the key element here. Items to be included assessed students' perceptions of various aspects of the technology as barriers versus facilitators to learning.

5.1.6 "Hit Rate" of Target Audience. To determine whether the TI-IN classes were comprised largely of Chapter 1 students, various social and demographic items were included in the student questionnaires. These items served as controls for the statistical appraisal of other items, such as analyses of scores on informaiton acquisition and morale.

5.1.7 Administrative Elements. Although issues of administrative effectiveness were addressed in several other ways, students were asked to share their perceptions of the administrative elements of the program, including the support provided by TI-IN, their local school officials, etc. Items involving testing, expense of the program, availability of textbook and other resources, etc. were included.

In addition to student questionnaires, at least two site visits per course were conducted. Facilitators, counselors, classroom teachers, and school administrators were interviewed at a random sample of downlink sites. Questionnaires were constructed to permit quantitative as well as qualitative indices of these constituencies' assessments of the quality as well as the impact to the TI-IN United Star Network Programs. Questions included, roughly were parallel to those of the attitude and opinion items on the student questionnaires.

The tactics taken with students in the College Credit Courses were similar to those used with students in the high school courses. In addition, California State University, Chico, *Partners in Professional Growth (EDUC 298)*, suggested additional items for inclusion. Other areas evaluated included: state credential requirements, tenure, right to work, cultural/regional needs, ethnic relationships, linguistic and demographic elements, and perceptions of the needs of beginning teachers held by novice instructors and by experienced teachers.

Two Staff Development Programs were evaluated: The *BioPrep Teacher Institute* and the *Foreign Language in the Elementary School* program. Local curriculum supervisors and evaluation experts of UofA were consulted to fine tune the procedures for evaluating staff development efforts.

The evaluation, in addition to these program-specific evaluations, asked general summative questions of the impact of Star Schools on students and on those in various aspects of the educational environment which was touched by the TI-IN United Star Network's portion of the Star Schools program. General questions were administered, optimally via telephone interviews, to a sample of the TI-IN United Star Network's external publics--students, teacher, and site administrators, as well as community education opinion leaders (e.g., school board members) and elected public officials in communities which have had a TI-IN downlink. Some of these questions were open-ended and assessed the respondents' perceptions of any positive and negative effects that being a part of a Star Schools program had on their schools and their community. Other interviews assessed the more global impact of the program on students and their desire to learn. All in all, the telephone interviews were with at least 120 students and with 30-40 other Star School constituencies to assess the more globally impacts of this experiment in tele-education. The instruments employed for this summative evaluation were refined during the process of site visitations conducted during Winter-Spring 1990 and were finalized in time to conduct the interview during late April and early May 1990.

Overall, the evaluation was quite positive and helpful to TI-IN. To review the detailed qualitative and quantitative results of this evaluation, please see Attachment M.

5.2 Partner Evaluations. Below lists the evaluation which was conducted by each programming Partner. Note: Each of the Partner evaluations were internally conducted.

5.2.1 Education Service Center Region 20. As part of their evaluation, ESC-Region 20 surveyed teachers and asked them to write their perceptions as teachers of the Star Schools Project. The qualitative comments were primarily positive toward the Star Schools experience and the ability of them as teachers to make a difference. One teacher described how a student who would otherwise not have been able to take Spanish III, successfully completed the class and scored high on the College Board Achievement Test. This student was admitted to Harvard and believed that this class helped make a difference in his admission.

A comparative analysis of grades earned by students in Star Schools sites versus non-Star Schools sites were compiled. The results indicated that there was little difference in performance between the two groups of students.

In conjunction with Region 20, Texas Learning Technology Group (TLTG), who developed the Physical Science class, conducted an evaluation of their videodisc curriculum taught via TI-IN. Overall, the results showed that the instruction was as effective over satellite as in a face-to-face classroom.

5.2.2 California State University (CSU)-Chico. The programming series entitled PARTNERS in Professional Growth was evaluated. Forty-nine teachers were enrolled in the series for 1989-90. The program was designed to support and build skills specially designed to assist beginning teachers in making a smooth transition from an effective stu-

dent to an effective teacher. Participants were paired with experienced teachers for peer coaching.

Multiple methodologies were employed. Participants, peer coaches and beginning teachers were interviewed and mailed self-administered questionnaires. Overall, PARTNERS was effectively adapted for delivery by satellite and rated "highly effective" by both groups. For beginning teachers, the most important aspect was the "support structure/peer coaching" that was offered.

Participants uniformly reported positive growth as a result of their year-long experience with the program and 94% of these teachers indicated that they were planning to continue teaching for 1990-91 school year. Of those who would be leaving the profession, all were leaving due to changes in life circumstances--marriage, change of residence to accommodate a spouse's career, and the like.

5.2.3 North Carolina Department of Public Instruction (NCDPI). All participants in the Foreign Language in the Elementary School program were evaluated at two points for a pre-post test. In the summer session, 35 of 289 respondents scored 100% on both the pre-and-post test. Furthermore, the participants were surveyed for their overall evaluation of the program. The program was first offered in Summer 1989, and then from January through May 1990. Overall, 91% of the participants agreed that the program was a "successful training experience" and that "presenters and the program were well organized."

5.2.4 Mississippi State University (MSU). MSU conducted an extensive evaluation of the attitudes and beliefs of all participants toward their college credit course offerings. The qualitative evaluation results were included in Attachment M. All total, the course equaled 147 contact hours. Eighty-five students participated in the offerings.

The evaluation was multi-staged. A needs assessment questionnaire was developed and mailed to each participant prior to the beginning of the course. This provided the instructor background information of each of participants as well an understanding of their expectations for the course. At the completion of the course another evaluation questionnaire was mailed to each participant. One course, the Junior High School Science Teacher Institute, sent a follow-up questionnaire to evaluate the level of involvement in implementing strategies taught.

For over 90 % of the participants, this was their first experience at television instruction. A significant majority of respondents were satisfied with the class and found this a convenient method of earning college credit.

6.0 PROJECT BENEFITS AND POST STAR SCHOOLS ACTIVITIES

TI-IN United Star Network successfully accomplished all the goals set forth in both the Year One and Two proposals. In many ways the Project exceeded the goals by absorbing and extending the intent of the Project beyond the actual funding period. Months after the Project, the majority of sites and Partners continue to work with TI-IN.

This was a challenging and exciting venture for all parties concerned. As one of only four organizations selected and funded under the first demonstration projects for the Star Schools Program, TI-IN United Star Network felt privileged to be at the forefront of change.

If there was a single major barrier to the Project, it was related to Partners who were unwilling to participate in a collaborative setting and take ownership of the goals and objectives set forth in the Project. Unfortunately, the Partner continued after the conclusion of the Project to create problems.

This section was designed to discuss on-going activities related to the Partnership and the retention of Star Schools sites. In addition, the Project had a major impact on TI-IN Network, the managing partner and leading distance learning provider. The resultant changes to TI-IN's on-going non-Star Schools activities have been outlined and discussed.

6.1 Establishing Relationship with Partners. Arrangements were made to continue a collaborative relationship with the Partners when the grant funding ended on September 30, 1990. TI-IN continued to work with every Partner, except the University of Alabama. However, each relationship was structured a little differently.

6.1.1 Western Illinois University and the Illinois State Board of Education. They continued to secure funding to develop programming and broadcast via TI-IN. In addition, WIU became a provider of direct student instruction with the course, Advanced Placement/Honors English Literature. For the school year 1991-92, WIU will continue to offer AP English and numerous other staff development and student enrichment programming.

ISBE has continued to assume an active role in monitoring the participation of their schools in distance learning activities. When a school does not utilize the technology and programming, ISBE will identify another site and move the equipment. Each school remains accountable to the state education agency.

6.1.2 Mississippi State University. For school year 1990-91, MSU continued to provide staff development programs for TI-IN Network. Dr. Sandra Harpole was contracted to provide a series on hands-on science. MSU has some excellent resources in math and science in the College of Arts and Science as well as the most sophisticated uplink within the Partnership. When possible, TI-IN will look to MSU for programs.

6.1.3 North Carolina Department of Public Instruction. NCDPI continued to broadcast programming weekly. Their programming has application for both North Carolina sites and schools nationwide. For the 1991-92 school year, NCDPI will continue its weekly programming and other student enrichment programming.

6.1.4 Texas Education Agency. TEA continues to develop and broadcast programming on a regular basis. For the 1991-92 school year, TEA will broadcast every Monday. Currently, they have begun construction on their own uplink studios.

6.1.5 California State University, Chico. CSU-Chico has developed many interesting teleconferencing outside the boundaries of the Partnership. When such teleconferences were found relevant to the TI-IN subscribers, TI-IN has contracted with CSU to transmit the programming through TI-IN's network. Examples include the geography series, Maps Globes and Atlases.

TI-IN continued to work with the College of Education to accredit a portion of the TI-IN Staff Development programming for professional growth/continuing education credit.

6.1.6 Education Service Center Region 20. ESC-Region 20 has been and continued to be the primary provider of programming for TI-IN Network. Together TI-IN and ESC-Region 20 offered over 20 high school credit courses, over 200 hours of Staff Development and student enrichment.

6.2. Expanding the Partnership Model. Prior to TI-IN United Star Network, TI-IN had developed one working partnership with ESC-Region 20. As a direct result of the successful collaboration between a variety of organizations and uplink sites under Star Schools, TI-IN realized the importance of expanding the partnership model. In Spring 1990, two new partnerships were developed that expanded the relationships developed under Star Schools. These included the formation of a joint venture with Mind Extension University and Jostens Learning Corporation.

6.2.1 Mind Extension University (ME/U). ME/U was an educational cable channel developed and operated by Jones InterCable, Inc. Jones, as the ninth largest cable company of the nation, designed ME/U to provide 24-hour educational programming. ME/U was designed to deliver college credit courses and degree programs.

In Spring 1990, TI-IN and ME/U established a joint marketing agreement whereby, one channel of TI-IN programming would be offered on ME/U. The significance of this agreement was far reaching: 1) TI-IN programming was now available through cable television, C-band as well as by Ku-band satellite; and 2) programming was available at the homes of students and teachers instead of just school.

With ME/U reaching millions of home subscribers across the country, this has allowed TI-IN to expand its audience for student credit courses and staff development. The venture will continue to expand for the 1991-92 school year. Cable News Network's Newsroom will be offered to all subscribing schools.

6.2.2 TI-IN and Jostens Learning Corporation Staff Development. Jostens Learning Corporation, the nation's largest producer of educational systems software, teamed up with TI-IN for the purpose of demonstrating and evaluating the value of delivering satellite-based staff development to their subscribing sites. TI-IN and Jostens entered into a three year contract to develop their own staff development programs as well as provide all of TI-IN's 200 hours to designated Josten sites. These sites with Jostens integrated systems have been equipped with satellite hardware to enable participation in their new satellite offering.

6.2.3 Working with State Departments of Education. TI-IN continued to work closely with state education agencies regarding issues of Star Schools sites, certification and accreditation issues.

6.3 Updating Equipment, Broadcasting in the Clear and Retrofitting the Network.

Prior to the Star Schools Project, TI-IN had been a scrambled Ku-band only network. Over the two-year period of the grant, things changed dramatically which required TI-IN to respond to the changing marketplace. In addition, the ME/U venture required that the technical system have greater flexibility.

The result was that TI-IN management decided the following: 1) to broadcast all programming unencrypted, 2) to redesign the TI-IN interactive equipment with the Subscriber Interface Device (SID) to increase audio reliability and reduce feedback/echo, and facilitate additional data transmissions. The execution of these goals was accomplished at the cost of several million dollars and required retrofitting (visiting and changing equipment) at each site. All 1000 sites including 273 Star Schools sites were visited in the Summer 1990.

6.4 Consumers Desire Programming and Technology Choices.

As school administrators become more sophisticated consumers of technology and distance learning programs, they wanted the ability to select courses from a number of providers. Today, the technology most desired has been that which allows a school the greatest range of programming choices as the least cost.

TI-IN has over the past year equipped more schools with Ku-C-band (dual band) antennae or cable television hook-ups than with fixed Ku or C-band systems.

6.5 Strategies to Discourage Pirating Programs.

TI-IN's choice to broadcast in the clear has required a redesign of all the programming to make the programs most useful when written materials are acquired. For nonregistered sites passive viewing has only been possible, as TI-IN's SID device has the toll-free telephone numbers programmed in the audio handsets lines for classroom interaction.

6.6 Retention of Star Schools Sites.

During Summer 1990, TI-IN worked with each Star Schools site to determine their interest in continuing to participate after the funding period. Sites which were completely uninterested relinquished the equipment. This equipment was moved to another school who was interested and willing to participate. There were an estimated 17 schools where the equipment was relocated.

The largest drop-off was from the subscribers in Alabama. All but 6 of the 56 total sites dropped off the Network. The Partner (UofA) and the state department of education informed the Project Director that all of the sites were using the equipment for satellite programming and none needed to be relocated. It has been impossible for the Project to oversee these activities.

Another potential and on-going problem occurred in Mississippi where multiple schools in a district were selected by the Partner. TI-IN used some of its own budget to enable schools to participate in courses for the 1990-91 school year. However, it is expected that some of the multiple sites may drop off during the 1991-92 school year, unless the state legislature provides distance learning funding. TI-IN continued to work closely with the state education agency and Educational TeleVision to disseminate information.

All total, TI-IN has been able to keep up the inventory and communication with 266 of the original 316. The Project Director and TI-IN have no method of accounting for what becomes of the equipment and how frequently it is used for sites in Alabama.

6.7 Certification Issue Surfaced. TI-IN's model of certifying each teacher in the states where they have students has become overwhelming. Today, TI-IN has over 1000 sites across 40 states. With each state requiring application fees and a variety of standards, this has become an expensive and time consuming venture. Ideally, standards for distance learning nationwide could help establish a certificate, perhaps, for distance learning.

6.8 Heighten Concerns about Copyright. Broadcasting in the clear has required that TI-IN appoint a staff person to work with publishers and the like to secure copyright clearance. While this activity had previously been done by teachers, the increasing number of lawsuits nationwide has forced TI-IN to centralize this activity for its own protection.

6.9 Expanded Instructional Model. Broadcasting in the clear enabled more students to enroll in TI-IN courses. However, TI-IN continues to believe that interactivity is critical to the direct student instruction. In Fall 1990, TI-IN expanded its instructional model to include both a certified television instructor and supporting teaching assistants. Students discussed problems with the TA or teacher before, during and after (including evening hours) the class via toll-free telephone lines. In addition, voice mail allowed students to record a message for a teacher. In this model the television teachers became the leader of the instructional team or master teacher.

6.10 TI-IN United Star Network Scholarships. Project income was earned from students located at non-Star Schools sites who registered in courses developed under Star Schools. Though, Star Schools sites received the courses at no cost, other non-Star TI-IN subscribers were required to pay fees.

The total income equaled to $76,000. This money, as outlined under EDGAR, was used to further promote the intent of the grant by increasing the access to academic courses by high school students at Star Schools sites. The Board of Governance developed a Star Schools scholarship program. Using $59,000, 172 students were awarded scholarships. The Star Scholarships were distributed across the Partnership for the purpose of enabling students to participate in the courses of their choice for school year 1990-91. See Attachment L for a complete list of the scholarship awards.

The remaining $17,000 was used to fund scholarships of students registered in classes at an

Alabama location -- Red Bay, Alabama. This was a case where the Partner had not informed the sites adequately about the Star Schools award. Specifically, that only courses designed and funded through Star Schools were offered at no cost to the students. The school believed that all courses were offered at no cost hence, students registered in all courses. When it came time to pay the fees, Red Bay had no money. So, the Board of Governance voted to fund the on-going participation of these students by awarding the scholarships. Unfortunately, this resulted in Red Bay receiving more scholarship support than others.

6.11 Student Course Enrollment. One measure of success was the number of students that enrolled in TI-IN courses even after the funding period. Table Two shows the total enrollment of 1703 students in courses for school year 1990-91. This is particularly significant in that TI-IN's total enrollment was approximately 6,000 students for this period. To review the enrollment statistics by school and state please refer to Attachment J.

6.12 Ownership Important for Acceptance. It was not enough to fund the acquisition of equipment and programming. Ultimately, each school needs to have some level of financial and behavioral commitment to allow for a successful implementation. Schools that jumped on the bandwagon for a "free" ride were generally the first to drop-off when the funding disappeared.

6.13 Project Time Too Short. A project of this magnitude would be better served if implementation was phased in over three of four years. Most sites had only access to Star Schools funded programming for a year because of lag time related to equipment installation and Project start-up. User acceptance would be better cultivated over a three or four year timeframe. In addition, a longitudinal evaluation effort which examined research questions related to the Project and to the effects of distance learning would have provided stronger data and findings.

7.0 CONCLUSIONS

TI-IN United Star Network made a difference for students and teachers across the nation. The programming funded and developed under Star Schools impacted not only students and their teachers in 316 sites, but others in TI-IN's 700 non-Star Schools sites. In the short two-year period, TI-IN United Star Network became a viable nationwide satellite-based program provider.

All total, 1133 students participated in the four credit courses--Japanese I, Anatomy & Physiology, Spanish III, Physical Science--developed under the Project. Numerous other students participated in student enrichment and special topic programs. Over 219 teachers participated in the college credit courses and thousands of others in staff development training. TI-IN met its primary goal of equalizing and increasing the access to academic resources. Attachment J has a breakdown of teacher and student enrollments. Thousands of additional teachers and students have continued to participate in the programming

TI-IN UNITED STAR NETWORK.

Table Two

Star Schools Course Enrollment for 1990-91
(as of 2/15/91)

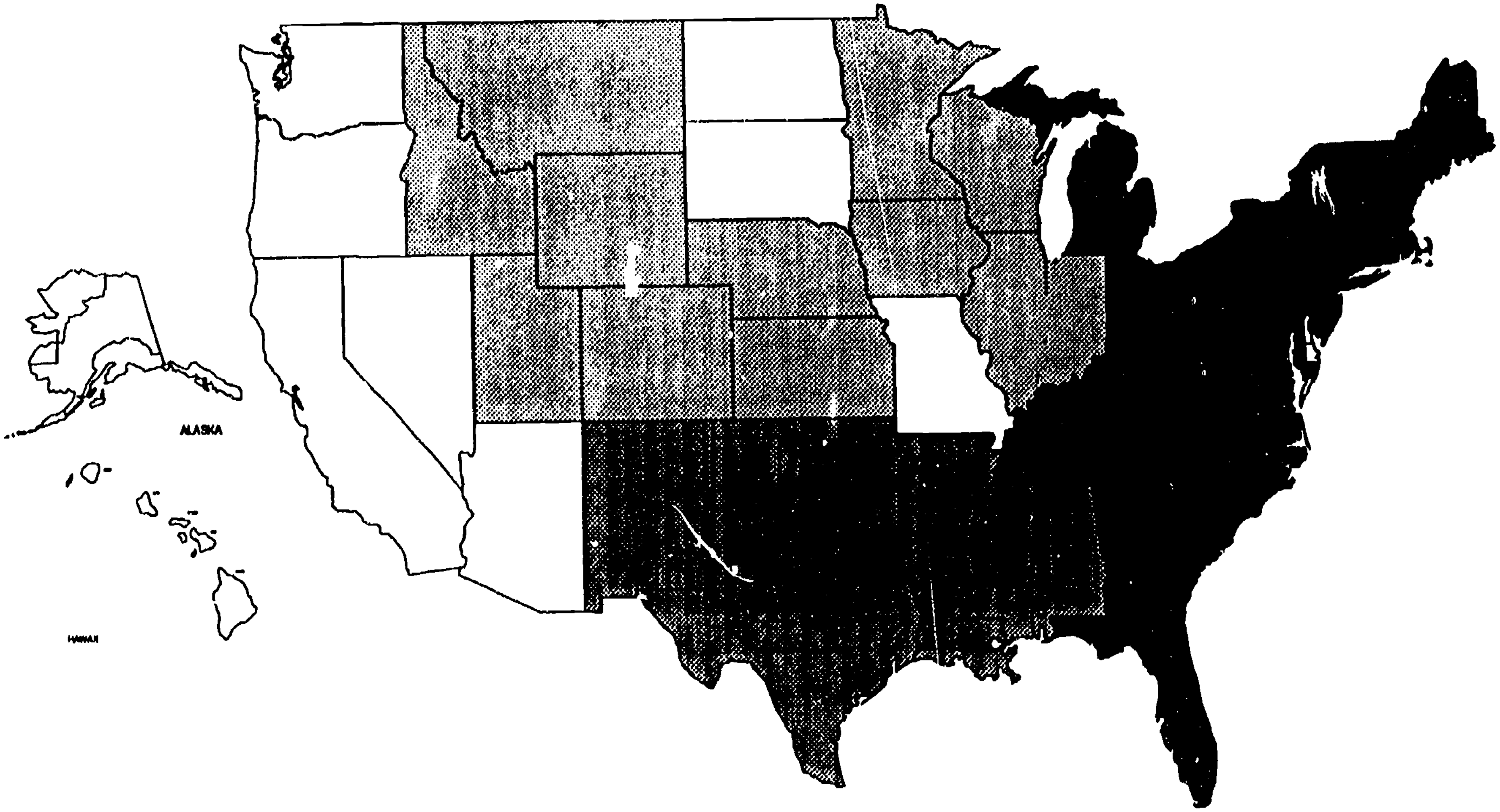
Course	# Enrolled
Anatomy & Physiology	38
AP English	82
Astronomy	127
Elementary Analysis	54
Elementary Spanish	39
French I	123
French II	60
German I	69
German II	16
Japanese I	47
Latin I	53
Latin II	11
Marine Science	112
Physics	13
Psychology	124
Sociology	103
Spanish I	464
Spanish II	118
Trigonometry	50
Total	1703

beyond the funding period for school year 1990-91. TI-IN United Star Network has made a difference in the lives of students across the nation.

ATTACHMENT A	List of Utilization Specialists
ATTACHMENT B	Star Schools Brochure
ATTACHMENT C	Operational Guidelines
ATTACHMENT D	TI-IN Network Newsletter
ATTACHMENT E	Newspaper and Magazine Articles
ATTACHMENT F	Questions and Answers about Star Schools, List Specifying Hardware and Programming Award to Star School Recipients, Year One and Year Two Programming
ATTACHMENT G	List of Star School Sites by State
ATTACHMENT H	Illinois State Board of Education and Western Illinois University Application and Assurances
ATTACHMENT I	Description of Programming Provided by Partners
ATTACHMENT J	Enrollment in Courses
ATTACHMENT K	List of Inventory
ATTACHMENT L	Scholarships
ATTACHMENT M	Evaluations

TI-IN UNITED STAR NETWORK.

U.S. TERRITORIES
SENIOR CONSULTANTS



MARSHA CAREY

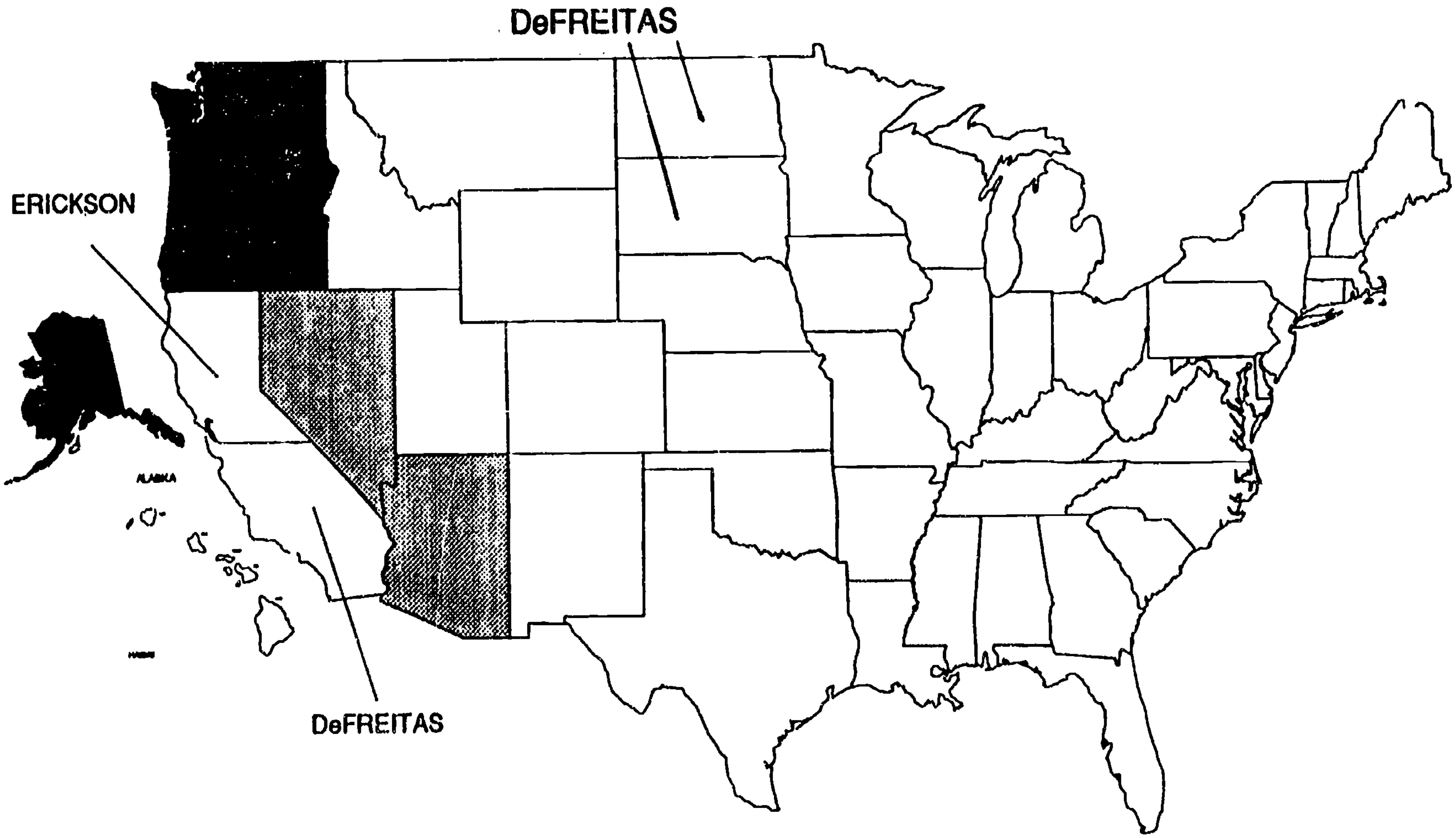
RON DAVIES

MARK CLAPP

As of October 11, 199?

TI-IN UNITED STAR NETWORK.

U.S. TERRITORIES
EDUCATIONAL CONSULTANTS



CAROLYN DeFREITAS

JOHN ERICKSON

As of October 11, 1990

TI-IN
UNITED STAR
NETWORK®

TI-IN UNITED STAR NETWORK BRINGS OUTSTANDING ACADEMIC RESOURCES DIRECTLY TO YOUR CLASSROOMS VIA SATELLITE.

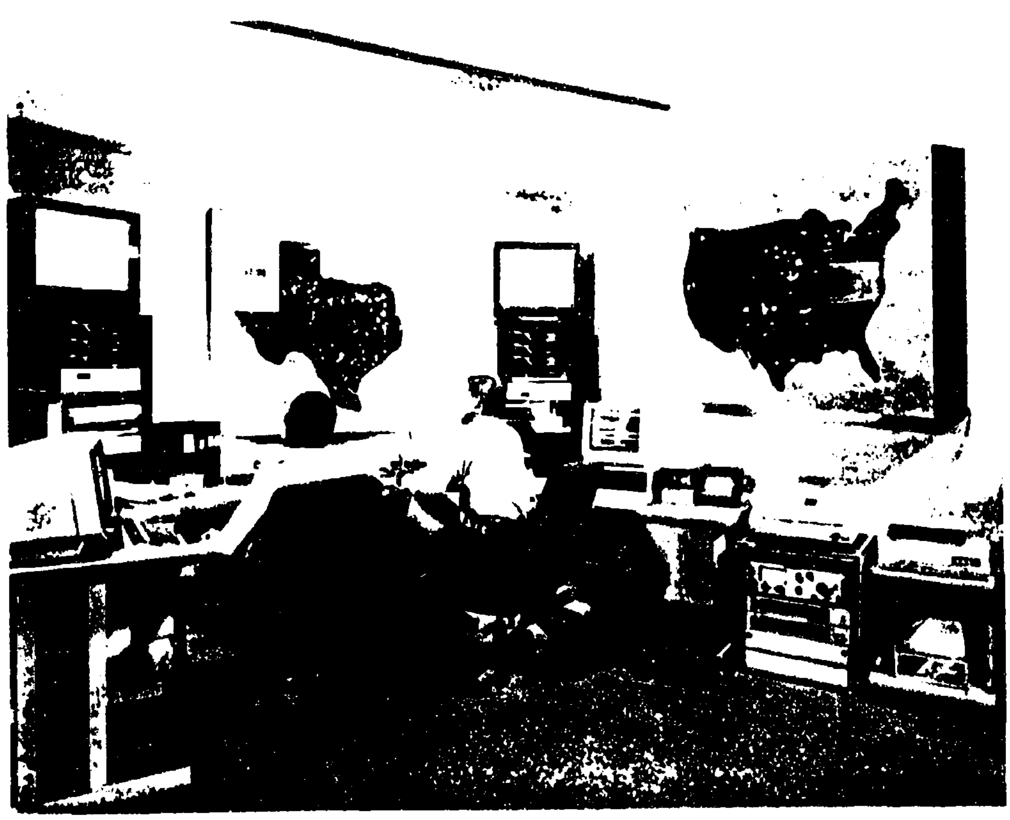
YOUR INTRODUCTION TO TI-IN UNITED STAR NETWORK

The TI-IN United Star Network serves 316 Chapter 1 eligible schools in 20 states. Direct student instruction and teacher training in mathematics, foreign language, and science are provided via state-of-the-art satellite broadcasts. This $9.7 million grant from the U.S. Department of Education's $32 million Star Schools Program equalizes access to academic resources by overcoming barriers of geography, wealth, race, and culture.

Live Interactive Programming

Satellite technology is utilized to bring "live" instruction directly to elementary and secondary students, and their teachers. Along with teacher training programming, prerequisite and advanced academic credit courses help meet graduation mandates by preparing students for college. Programming provided by TI-IN United Star Network serves as an outstanding instructional resource for educators.

All programs are interactive using 1-way video and 2-way audio/data. Students and teachers communicate using the automatic Talkback system. For data transmission, students use electronic writing tablets and computers.



TI-IN Monitor and Control Room in San Antonio, Texas where the customer hotline is answered.

PRIVATE AND PUBLIC SECTORS JOIN FORCES

The creation of TI-IN United Star Network is a direct result of a partnership between private enterprise and public education institutions. Joining TI-IN Network, Inc. and Education Service Center, Region 20 in San Antonio, are seven new partners, originating their own unique and exemplary programming to this resource sharing network.

Dr. Mary Budd Rowe demonstrates a point, with a little assistance, during her program, "Adventures in Science." Dr. Rowe is president of the National Science Teachers Association.

The University of Alabama

The University of Alabama at Tuscaloosa shares its highly successful and acclaimed Biomedical Science Preparatory Program (BioPrep) which has qualified and motivated many disadvantaged young people to pursue college study and careers in medical science. This program is designed to train junior high and high school students and their teachers in not only advanced science, but also English, Math, and Social Studies. Anatomy and Physiology and Japanese are being broadcast during the 1989-90 school year.

TI-IN students and teacher interact using the Talkback system.

California State University, Chico

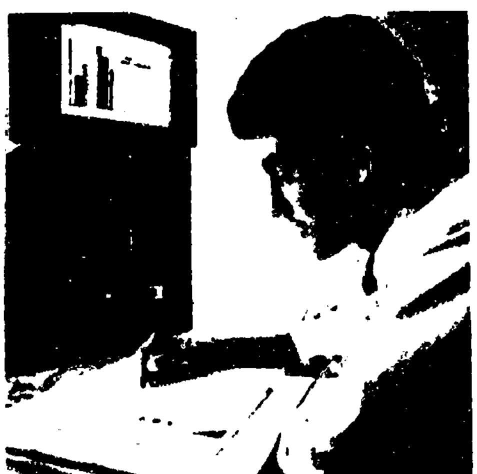
California State University has addressed the critical need of upgrading the skills of local teachers by offering several college credit courses. One of the college credit offerings is Partners in Professional Growth, a peer coaching program for beginning teachers. Partners bridges college training with the practical classroom experience of new teachers. CSU, Chico offers a masters degree in Foreign Language Instruction via satellite.

Western Illinois University

This midwest university is producing Career Vision, an enrichment program for junior high students, focusing on major science areas (Biology, Chemistry, Earth Science and Physics) and mathematics. All segments consist of videotaped "field trips" illustrating science/math related activities, followed by a panel discussion between students and featured guests.

Mississippi State University

Mississippi State brings to TI-IN United Star Network college credit courses through its Math and Science Institutes designed for teacher training. These courses were developed in the first year of the Network and are being offered in year two. Their offerings include: Earth Science I and Demonstrations and Concepts for Physics Teachers.



Students can "come up to the blackboard" using TI-IN's electronic writing tablet.

North Carolina Department of Public Instruction

A 1985 legislative mandate in North Carolina stated that each school district in the state must provide instruction in at least one second language for students from kindergarten to the 12th grade, regardless of geographic area or economic level. To implement second language instruction by 1993, the date set by law, North Carolina Department of Public Instruction is providing retraining of classroom teachers through Foreign Language in the Elementary School (FLES). This is an 18-hour program for elementary teachers with a foreign language background, secondary foreign language teachers, and other certified teachers.

Education Service Center, Region 20

Region 20 is experienced in selecting qualified instructors for satellite instructional programming. New course offerings such as Spanish III, go along with an impressive existing selection of math, science, and foreign language courses.

In the first year of the project, Region 20 began offering a new Physical Science course. This is for 9-12 graders and incorporates a complete physical science curriculum, utilizing videodisk technology. A Foreign Language Alternatives Laboratory offers students an opportunity to explore the nature of other languages and cultures. The Guidance Counseling Institute for Math and Science is designed to stimulate, excite, and encourage students to study math and science.

Texas Education Agency and Illinois State Board of Education

The Texas Education Agency and the Illinois State Board of Education are also active, participating partners in the TI-IN United Star Network. These state agencies select school sites and set policy.

TI-IN Network, Inc.

TI-IN Network, Inc. is the partner that administers the grant plus, provides and installs the hardware necessary for schools to receive the satellite transmitted academic resources.

In addition, TI-IN Network, Inc., offers 400 hours a year of Staff/Teacher Development Programs. These programs feature top experts in education from across the nation. Enrichment programs, a Student Council of the Air, and School Board Training are other types of programming sponsored by TI-IN Network which are available to Star Schools recipients.

ELIGIBLE SCHOOLS RECEIVE STAR SCHOOLS HARDWARE

TI-IN Network, Inc. installs "downlink" hardware in the 316 schools who are recipients under the Department of Education grant. This hardware includes a satellite antenna and a specially designed audio/video cart that includes a TV monitor, printer, cordless telephone, and a VCR. When the necessary equipment is in place, a Star-funded school is able to use immediately all of TI-IN and United Star Network programming.

Broadcasts are "uplinked" from the existing facilities of each participating partner. TI-IN provides technical assistance by sharing its expertise in training users, managing the logistics of student registration and program administration, and in providing the end-to-end delivery system and satellite transmission time.

In addition to the new and existing instruction offered by United Star Network, each school becomes part of a larger, existing network. If so desired, students may enroll in any of TI-IN Network's existing high school courses.

Education Service Center, Region 20's Master Control Facility is where TI-IN satellite transmissions are routed and monitored.

TI-IN UNITED STAR NETWORK®

TI-IN United Star Network is a cooperative, multi-state educational partnership formed in April of 1988 to develop and transmit instructional programming. Composed of the following partners, TI-IN United Star Network is funded by the United States Department of Education under the Star Schools Program (CFDA 84.203A).

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Executive Assistant to the President

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Contact: **Ralph Meuter, Ph.D.**
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Director of Media and Technology Services

Texas Education Agency
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Director of Education Technology

Western Illinois University & Illinois State Board of Education
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Dean, College of Education
Robert Leininger
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TI-IN UNITED STAR NETWORK®

OPERATIONAL GUIDELINES
for
DIRECT STUDENT INSTRUCTION
and
STAFF DEVELOPMENT

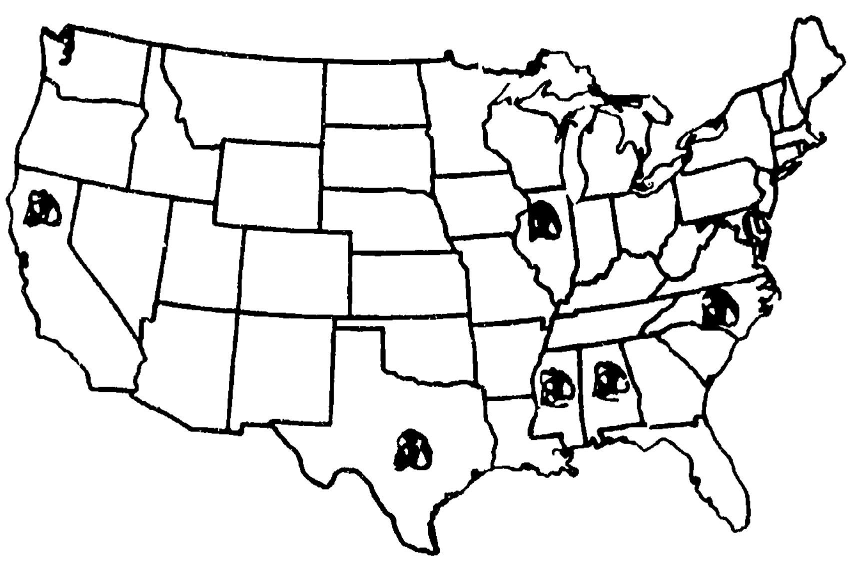
TABLE OF CONTENTS

OPERATIONAL GUIDELINES FOR STUDENT INSTRUCTION AND STAFF DEVELOPMENT

FOREWORD

TI-IN Network is an innovative delivery system designed to provide interactive televised educational programs. Uniquely equipped classrooms at subscribing schools, education service centers, and other educational institutions are designed to receive elementary classes and high school credit courses as well as a variety of educational programs for administrators, teachers, parents and community members. These courses originate from studios at any one of the following locations:

- **Education Service Center, Region 20 in San Antonio, Texas;**
- **University of Alabama at Tuscaloosa;**
- **North Carolina Department of Public Instruction in Raleigh;**
- **California State University at Chico;**
- **Western Illinois University in Macomb;**
- **Mississippi State University in Starkville.**



This handbook is designed to help the reader ensure effective instruction for students and staff members by detailing the communication necessary between providers and receivers of the instruction. Anyone designated to work with TI-IN Network should have access and time to study this handbook.

It is only through mutual cooperation and assistance that high standards and quality will be maintained for all TI-IN Network programs. Suggestions for improvement are welcomed and should be sent to:

TI-IN NETWORK
1000 Central Parkway North
Suite 190
San Antonio, Texas 78232
(512) 490-3900

SECTION I: SITE OPERATIONS

ADMINISTRATIVE RESPONSIBILITIES

The term site used in this handbook refers to institutions which are technically equipped to receive TI-IN's satellite delivered courses and have students or staff participating in these courses.

When a site joins the Network, the superintendent/executive director, assigns a staff member to the role of program contact and determines the installation location of the classroom equipment. In deciding equipment location, the following factors should be considered: Is the location quiet, conducive to high levels of concentration? Is it well ventilated and comfortable? Is it large enough to allow elbow room for students when tests are given? Is it accessible and yet easily secured?

ROLE OF PROGRAM CONTACT

The **program contact** serves as the TI-IN coordinator and oversees all administrative functions of TI-IN courses at the site. Typically this person is a building principal, assistant principal, or administrative manager.

It is the program contact's responsibility to:

- **receive** all TI-IN correspondence, program, and registration materials and disseminate information *
- **assign** staff members for the roles of **course facilitators**
- **train** facilitators on equipment operation and administrative procedures
- **inform** students and staff of the policies of TI-IN courses and answer administrative questions
- **register** students and staff for TI-IN courses
- **order** course materials and monitor receipt of monthly staff development handouts
- **tape** student courses during local holidays

Once a site has joined the Network and the program contact is identified, TI-IN sends quantities of the program guide, student registration and course guide as well as registration forms for student and staff participation to the program contact for distribution.

TI-IN sends program guides, student course guides, registration forms, program updates and correspondence	→	**Program Contact** distributes this information	→	**Participants** teachers, administrators, students, community members, etc.

* The program contact may wish to designate another person to receive lesson plans for the student credit courses and to be responsible for the consolidation of homework and course assignments to be returned to TI-IN instructors. This is suggested based on the frequency of these mailings.

Assigning Facilitators

The program contact identifies facilitators for courses which will be offered at the site. **Facilitators are assigned to monitor and assist in classroom administration of TI-IN courses.** These individuals work with the program contact on matters which deal directly with their assigned courses. The responsibilities of facilitators vary depending on whether they are responsible for direct student instruction or staff development courses. (For specific duties of facilitators, reference **Role of Facilitators** in this section.)

Program Contact identifies and coordinates training of facilitators

Student Credit Courses

Staff Development Courses

Training Staff

Once the equipment installation is completed at the site, the program contact receives quantities of the current program guide, student registration and course guide and registration forms for participants. Also, the program contact receives a **TI-IN Network Subscriber Notebook** which contains current programming information, registration procedures, course guides for direct student instruction and staff development, along with equipment operation manuals.

To support staff training on use of the equipment, each audio-visual cart contains a demonstration videotape covering operation of all components. All students and staff participating in TI-IN courses are encouraged to view this tape.

There are several programs scheduled over the Network to assist in the administration of TI-IN courses. Each program contact along with newly assigned facilitators are encouraged to participate in one of the **New Subscriber Orientations** for an overview of Network programming and equipment operation. Facilitators of credit courses for students are required to view the **General Facilitator Training** sessions scheduled at the beginning of each semester. Other training includes special **Lab Facilitator Training** for science courses and regularly scheduled **Teacher/Facilitator Meetings.**

Please refer to the program guide for training session dates and times. In order to best utilize these training sessions, it is recommended that prior to attending, the program contact and facilitators be familiar with the current program guide, view the equipment demonstration tape, and review a copy of this manual on operational guidelines.

Prior to training: Program Contact and Facilitators review

- **equipment demonstration videotape**
- **program guide**
- **student registration and course guide**
- **operational guidelines**

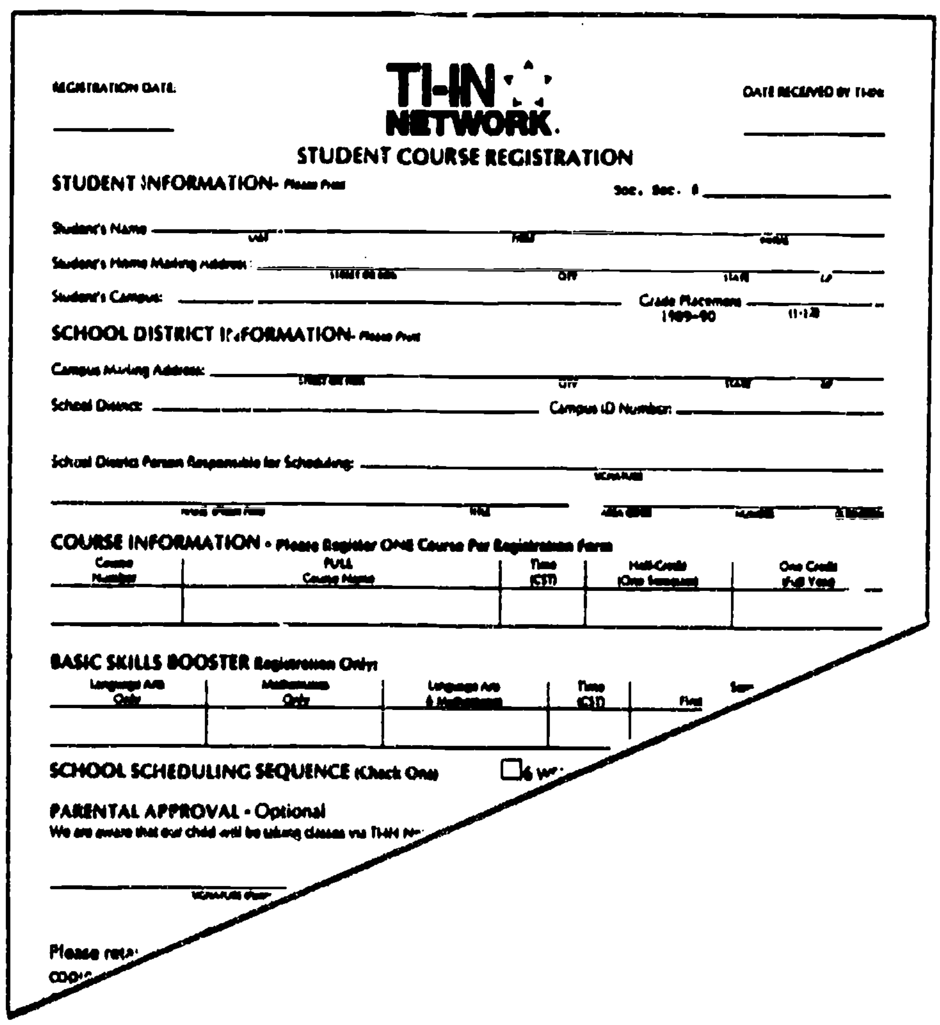
Informing Students and Staff

Student Courses - In order to help students become quickly adjusted to TI-IN courses, it is important that all participating students be aware of policies early in the year. The program contact and/or facilitator should meet with students to discuss policy issues before the end of the first week of school. Student selection is an important factor in the success of TI-IN courses. (Reference **Section II: Student Courses and Policies - Selection of Students.**)

Staff Development Courses - It is very important that staff members are informed of the programming available to them, how to register, how to obtain credit, and who to contact should they have any questions. TI-IN Network continues to expand its credit offerings to meet the specific needs of teachers and administrators. Affiliations with California State University - Chico, Mississippi State University in Starkville, Adams State College in Colorado, Seattle Pacific University in Washington, as well as affiliations with state departments of education offer opportunities for participants to receive college credit, professional growth credit, continuing education units, and certification credit hours. (Reference **Section III: Staff Development Courses.**)

Registering

Student Courses - The program contact must officially register a student in a TI-IN course by completing a four-part Student Course Registration form. (Reference **Section II: Student Courses and Policies - Registration Process.**)



REGISTRATION DATE:

TI-IN NETWORK.

DATE RECEIVED BY TI-IN

STUDENT COURSE REGISTRATION

STUDENT INFORMATION - Please Print

Soc. Sec. #

Student's Name

Student's Home Mailing Address:

Student's Campus:

Grade Placement 1989-90 (1-12)

SCHOOL DISTRICT INFORMATION - Please Print

Campus Mailing Address:

School District:

Campus ID Number:

School District Person Responsible for Scheduling:

COURSE INFORMATION - Please Register ONE Course Per Registration Form

Course Number	FULL Course Name	Time (CST)	Half-Credit (One Semester)	One Credit (Full Year)

BASIC SKILLS BOOSTER Registration Only:

Language Arts Only	Mathematics Only	Language Arts & Mathematics	Time (CST)	First

SCHOOL SCHEDULING SEQUENCE (Check One)

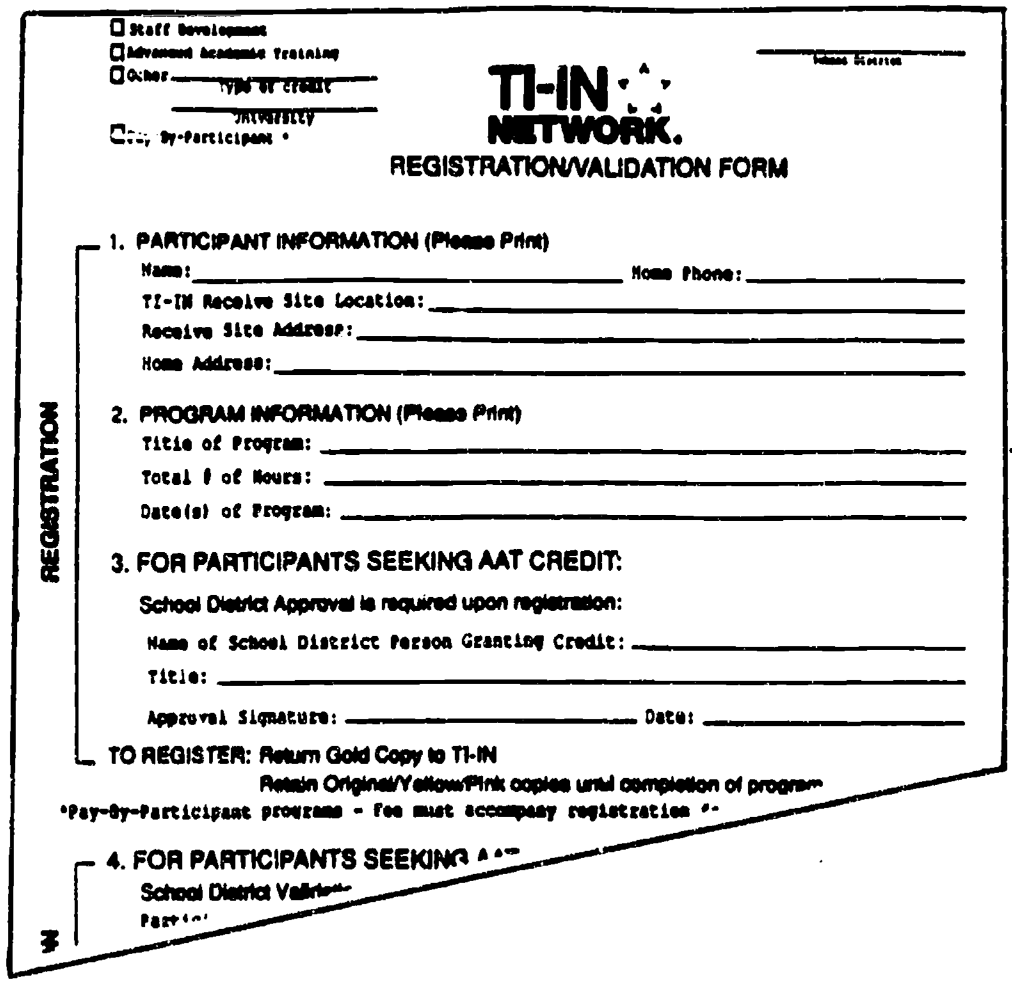
PARENTAL APPROVAL - Optional

We are aware that our child will be taking classes via TI-IN

Please reta

Registering
(continued)

Staff Development Courses - Sites are also asked to register all staff development participants by completing a TI-IN Registration/ Validation Form. This is required regardless of whether the course is taken for credit. Since the staff development programs are scheduled after the school day, the registration process reinforces communication regarding opening the building after school hours and having handouts available for participants. (Reference **Section III: Staff Development Courses - Registration Process.**)



☐ Staff Development
☐ Advanced Academic Training
☐ Other ______ Type of Credit
______ University
☐ Pay-By-Participant *

TI-IN NETWORK.
REGISTRATION/VALIDATION FORM

REGISTRATION

1. PARTICIPANT INFORMATION (Please Print)
Name: ______ Home Phone: ______
TI-IN Receive Site Location: ______
Receive Site Address: ______
Home Address: ______

2. PROGRAM INFORMATION (Please Print)
Title of Program: ______
Total # of Hours: ______
Date(s) of Program: ______

3. FOR PARTICIPANTS SEEKING AAT CREDIT:
School District Approval is required upon registration:
Name of School District Person Granting Credit: ______
Title: ______
Approval Signature: ______ Date: ______

TO REGISTER: Return Gold Copy to TI-IN
Retain Original/Yellow/Pink copies until completion of program

*Pay-By-Participant programs - Fee must accompany registration

4. FOR PARTICIPANTS SEEKING AAT
School District Valid
Partic

Pay-by-Participant Courses - In addition to student courses and staff development programming offered during the school year, there are special programs which are made available to all sites on a pay-by-participant basis, requiring an individual registration fee or a site registration fee.

The TI-IN Network Registration/Validation Form is used for these pay-by-participant programs, accompanied by the registration fee. Examples of programs which fall into this category are as follows:

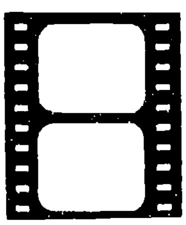
- June/July Staff Development Programs
- Test Reviews for Students - SAT and ACT Reviews

Ordering Course Materials

Student Courses - Materials required for student courses are outlined in the student registration and course guide. Current state-adopted textbooks are used for the direct student instruction courses. These may be ordered from the state depository or directly from the publisher. Please review your institution's local textbook ordering policies and include TI-IN course texts when placing orders. Requirements for each course are included in the course guide information. Please remember that all texts and materials should be ordered in time to arrive for the BEGINNING of the semester. In some instances, the site may need to borrow or purchase textbooks for their students. It is important to keep accurate records of textbooks distributed to students. Utilize local/state policy in determining how to handle the replacement of any textbooks that are lost or damaged.

Staff Development Courses - Any textbooks or materials required for staff development programs are noted within the course descriptions of the program guide.

Taping



Student Courses - To accommodate the varied holiday schedules of each site, including spring breaks, it is required that each site make arrangements to tape the student courses during local holidays. This procedure prevents students from missing any information covered in TI-IN courses during holidays by providing make-up tapes upon their return to school. As a policy, TI-IN Network does not provide tapes for distribution to sites for make-up of courses missed due to a local holiday.

Staff Development Courses - Any videotaping restrictions of the staff development courses are stated in the course descriptions of the program guide.

Program Contact Checklist

The role of the program contact is critical to the administration of Network programming. The following page provides a reference checklist of the program contact's responsibilities in the initial stages of organizing the site for participation.

PROGRAM CONTACT RESPONSIBILITIES CHECKLIST

GENERAL ADMINISTRATIVE

___ Read Operational Guidelines for Student Instruction and Staff Development, review TI-IN Network Subscriber Notebook and equipment demonstration videotape

___ Establish and communicate internal operating procedures to school personnel

___ Inform students/staff of Network program offerings

STUDENT COURSES

___ Screen students for participation

___ Register students for courses

___ Assign facilitators to each student course

___ Train course facilitators in

- ___ use of the equipment (equipment demonstration tape)
- ___ Network offerings (program guide, student registration and course guide)
- ___ administrative procedures (operational guidelines)

___ Classroom facilitators attend scheduled on-air

- ___ General Facilitator Training Sessions
- ___ Teacher/Facilitator Meetings
- ___ Lab Facilitator Training (science facilitators)

STAFF DEVELOPMENT COURSES

___ Assign facilitators to staff development courses

___ Train staff development facilitators in

- ___ use of the equipment (equipment demonstration tape)
- ___ Network offerings (program guide)
- ___ administra procedures (operational guidelines)
- ___ credit op available for participants and reg n requirements for these process

The facilitator's active participation during a course makes a difference in the level of student and staff involvement and success. In cases of direct student instruction courses, the TI-IN teacher depends on facilitators to recognize and report the level of student involvement and to assist students in maintaining active participation. In the case of staff development courses, the facilitator is needed to introduce staff members to the use of equipment and encourage active participation.

Due to the important role the facilitator plays in the success of Network programming, there are several key qualities the program contact should look for when selecting facilitators. The facilitator should be:

- **Enthusiastic** - for the success of distance learning
- **Interested** - in technical equipment and its operation
- **Professional** - in appearance and attitude
- **Committed** - in time and energy
- **Organized** - with necessary materials available for participants, deadlines met, and information on hand to answer questions
- **Good Humored** - when things do not go exactly as planned

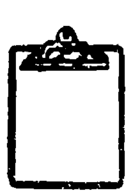
Facilitator's responsibilities are to:

- **Attend Training Sessions**

- **Monitor Equipment Operation**
  - Demonstrate Proper Use of Equipment
  - Report Technical Difficulties
  - Record Courses for Replay

- **Support Instruction**
  - Disseminate and Return Course Materials
  - Monitor and Facilitate Instruction
  - Keep Records
  - Consult with the TI-IN Instructors
  - Administer Evaluations

Attend Training Sessions

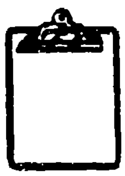


It is recommended that all facilitators attend the **New Subscriber Orientations** scheduled at the beginning of each semester for an overview of Network programming and equipment operation. It is beneficial to review the equipment demonstration videotape, the program guide, the student registration and course guide, and this manual on operational guidelines to best utilize the training sessions.

Facilitators of the student credit courses are required to attend General Facilitator Training, Teacher/Facilitator Meetings, and Lab Facilitator Training Sessions (science course facilitators).

General Facilitator Training - At the beginning of each semester, general facilitator training sessions are offered to acquaint and/or update facilitators with the policies and procedures of TI-IN Network student credit courses. It is recommended that these sessions be videotaped and reviewed periodically. These training sessions are listed in the current issue of the program guide.

Attend Training Sessions (continued)



Teacher/Facilitator Meeting - During the first day of student courses, the TI-IN teacher will provide the facilitators with specific course details. As outlined in the program guide, specific dates and times are scheduled over the network for teacher/facilitator meetings throughout the semester. These meetings are held to discuss particular procedures and answer facilitator questions.

Lab Facilitator Training - In addition to regularly scheduled teacher/facilitator meetings, there are special training sessions scheduled for facilitators of science courses which require laboratory experiences. These required training sessions serve the following purposes: 1) to demonstrate safety factors in the use of lab equipment, 2) to discuss the lab sessions to be used in the regular classroom, and 3) to define the administrative and educational responsibilities of the lab facilitators, particularly in the area of student-facilitator interaction. Safety requirements necessitate that lab facilitators be certified teachers.

Monitor Equipment Operation

Demonstrate Use of Equipment - Facilitators should know how to turn on the equipment and be able to demonstrate procedures for using the talkback equipment. It is extremely important that the equipment be turned on **at least 10 minutes** prior to the start of the course so that it is ready for use.

- **Channel Changes:** Channel changes should be made at least 5 minutes prior to the start of class. Failure to do so may result in an inability to place a all until the next data update by satellite.
- **Printer:** The printer should be loaded with paper.
- **Phone Handsets:** When not in use, phone handsets should be put in their cradles so that the batteries can recharge.
- **AVU:** When not in use, the AVU should remain plugged in to the AC power outlet with components turned off.

Report Technical Difficulties - In the event of equipment failure, weather-related problems, or technical difficulty, the facilitator should immediately notify

TI-IN Network Maintenance, Monitor and Control (1-800-666-8446). In order to obtain a videotape of the program, this report must be initiated within 24 hours. Tapes should be returned within two weeks in order to avoid being charged the following fees: $6.00 - 60 minute tape; $7.00 - 120 minute tape.

Record Courses for Replay - When a student is absent, it is necessary to automatically videotape the course. This tape should be made available immediately upon the student's return to class for make-up purposes. Some sites routinely record each lesson and allow students to use these tapes for review.

Since school calendars vary greatly in their local holidays and spring breaks, it is the site's responsibility to videotape student courses during the local holidays for make-up purposes when students return to school. (This also applies to staff development courses which are not videotape restricted.) If a program is videotape restricted, it must be viewed live. It may not be videotaped nor may a tape be requested from Monitor and Control.

Support Instruction

Staff Development Courses - Instructional support for staff development courses involves copying and disseminating handout materials, demonstrating equipment use, monitoring attendance, and verifying records are in place if participants wish to receive credit. For details on the processes to receive credit and the types of credit available, refer to Section III: Staff Development Courses.

Student Courses - Instructional support is a key role for the facilitator of student credit courses and involves specific duties and procedures. Student course facilitators work very closely with the TI-IN teacher and instructional coordinator, who supervises the TI-IN teacher and the instructional process.

Disseminate and Return Course Materials - It is the facilitator's responsibility to ensure that materials are reproduced in sufficient numbers for students and ready as needed for class. The course materials must be kept in a secure place to prevent access by students until requested by the TI-IN teacher.

TI-IN provides envelopes to sites participating in student courses for the return of course materials. More than one set of course materials may be included in order to conserve envelopes and postage. Separating the contents by course and clearly labeling the materials on the outside of the envelope is suggested by use of the following cover sheet:

TI-IN COVER SHEET

TO: ____________________
(Teacher)
____
(Class/Time/Channel)

FROM: ____________________
(Site)
____
(Facilitator)

COMMENTS ____________________
____

TI-IN envelopes are oversized and, therefore, require more postage. Without the correct postage, there may be a week's delay or longer in receipt of the materials by the TI-IN teacher.

Envelopes are not to be reopened once they have been sealed.

ONLY A TI-IN NETWORK TEACHER SHOULD BREAK THE SEAL OF AN EXAM OR HOMEWORK ENVELOPE TO ENSURE INTEGRITY OF THE CONTENTS.

If it is necessary to open the envelope, a new envelope should be prepared for mailing. If the envelope contains exams and appears to have been tampered with or is open upon receipt by the TI-IN teacher, the exam(s) will be invalid.

Occasionally, materials are lost in the mail. Therefore, it is strongly recommended that the facilitator photocopy major tests, semester exams, and research papers before mailing to the TI-IN teacher. Please destroy the photocopies once verification of receipt is made.

Support Instruction (continued)

Monitor and Facilitate Instruction

Course Period - One facilitator may monitor more than one student instruction course as long as the courses do not overlap. A facilitator must be physically present in each course during the entire period. The facilitator's attention should be directed toward the smooth operation of the class. There must be active involvement by the facilitator throughout each class.

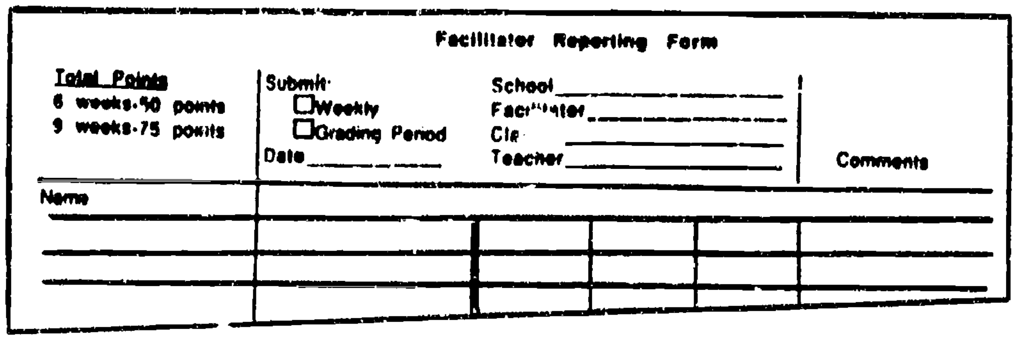
Exams - Before exams are administered, the exam should be kept in a secure location at the receive site. Exams should be carefully monitored by the classroom facilitator, collected at the end of the class, and sealed in a TI-IN envelope for mailing the day of or the day after the exam. If the facilitator notices any incidence of cheating, he/she should report it to the site principal and note it on the exam copies to be returned to the TI-IN teacher. Students who cheat on a homework assignment, quiz, exam, or any other work assigned by the TI-IN teacher will automatically receive a grade of "0" (zero) for that assignment.

Tutoring Sessions - Tutoring sessions are available for students whose performance is below passing. These may be conducted over the toll-free line or on air. Tutoring sessions should be requested by the site principal calling the TI-IN instructional coordinator. In turn, the instructional coordinator will schedule airtime through the TI-IN Network office and confirm the date and time with the site principal. Facilitators should encourage students to call the TI-IN teacher during the scheduled office hours as soon as it appears the student is having difficulty. It is recommended that students receiving progress reports which indicate low grades be required to call in for individual assistance until grades are satisfactory.

Keep Records

Facilitator Reporting Form - Although the TI-IN teacher keeps the official grade book for the course, it is necessary for facilitators to list the officially registered students and record important information such as absences, tardies, tests missed, homework turned in, and any other information the school principal designates or that the TI-IN teacher requests. The Facilitator Reporting Form is used for these purposes. For example, some instructors may ask facilitators to keep a record of major test grades.

Many facilitators write notes about school activities in general and the class in particular. Since the TI-IN teacher depends on quality feedback from all facilitators, this is an excellent way to keep the teacher abreast of successes and potential problems. To simplify the reporting process, facilitators are asked to photocopy this form weekly and mail it to the TI-IN teacher. Some schools choose to have complete records kept at the site. This is a local decision, not a requirement.



Facilitator Reporting Form

Total Points
6 weeks-50 points
9 weeks-75 points

Submit
☐ Weekly
☐ Grading Period
Date

School
Facilitator
Cl
Teacher

Comments

Name

Support Instruction (continued)

Attendance - The facilitator for direct student instruction is also responsible for recording the official attendance each day. This data is communicated through the Facilitator Reporting Form, mailed weekly to the TI-IN teacher. Students must arrive and remain in the classroom during the entire broadcast of instruction.

Tardies - TI-IN courses begin on time. It is extremely important that students are seated and ready to work in the TI-IN receive site classroom **before** the TI-IN teacher begins. Instructional time is important. Excessive tardies should be reported to the site principal and reflected on reports to the TI-IN teacher.

Drops/Adds - It is important for facilitators to notify in writing the administrative offices of TI-IN Network at 1000 Central Parkway North, Suite 190, San Antonio, Texas 78232, as soon as a student drops or adds a course. A telephone call to the TI-IN teacher or the TI-IN Network Administrative Office does not officially drop or add a student. (For details on the registration process, reference **Section II: Student Courses and Policies.**)

Progress Report - If a student's performance is 75 or below at the midpoint of a grading period, the TI-IN teacher will send a progress report to the student. This report must be signed by the student's parent or guardian and returned to the school. It is the responsibility of the facilitator to ensure that the progress report is returned to the TI-IN teacher.

Grade Reports - TI-IN will issue grade reporting sheets on a six-week or nine-week basis during the regular academic term. During summer school, grade reporting sheets will be issued at the end of each semester. A numeric grade is given for academic achievement in the class. TI-IN considers 70 a passing grade. (For details on the grading policy, reference **Section II: Student Courses and Policies.**)

Cooperate and Consult with the TI-IN Instructors

Student Courses - TI-IN instructors are experienced, certified teachers. They are responsible for the total course instruction of the students and depend on facilitators to support classroom operation. All instructors are available for telephone consultation at stated office hours or by appointment should facilitators or students have questions, special requests, or require individual assistance. Effective and consistent communication between the facilitators and instructors is critical to the success of the program.

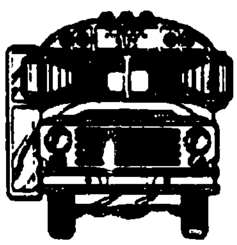
Staff Development Courses - For information on how to communicate with staff development presenters after their broadcasts, call TI-IN Network at (512) 490-3900.

Administer Evaluations

Student credit courses, staff development courses, and the technical delivery system are continually being evaluated. Part of the evaluation will be completed by facilitators, TI-IN teachers, students, and other site officials. Facilitators are essential to this evaluation process and will be asked to complete surveys promptly, collect surveys from students and staff, and return them to TI-IN Network, 1000 Central Parkway North, Suite 190, San Antonio, Texas 78232, (512) 490-3900.

SECTION II: STUDENT COURSES AND POLICIES

STUDENT PROGRAMMING



TI-IN Network offers a variety of programming for students. The **program guide** contains descriptions and schedules for the **student enrichment programs** (grades K-12), student reviews for the SAT and ACT, and **Student Council of the Air** meetings held over the Network. The **student registration and course guide** contains the elementary and secondary **academic courses** available to students.

This section is devoted to the **policies and procedures of academic courses** for students. Details for participating in the non-academic student courses will not be covered in this manual since details are provided within the course descriptions of the program guide.

The term **instructional coordinator** used in this section refers to the supervisor of the TI-IN Network on-air teacher. This person functions as the TI-IN Network principal for particular courses, maintaining high quality instructional television programs, and developing and implementing strategies for improving the quality and effectiveness of distance learning instruction.

SELECTION OF STUDENTS

Each TI-IN Network course is designed to address essential learning elements which are included in learner outcomes for that course. Prerequisite requirements are identified for many of the upper level courses.

Program contacts for each site are encouraged to examine prerequisites when selecting students. Students should not be registered in a course for which they have little or no preparation.

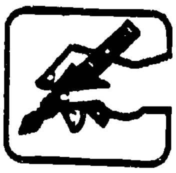
The success of each student enrolled in a TI-IN course is of prime importance. Previous experience has shown that students should be screened prior to registration.

Factors to consider when screening students:

- successful completion of required prerequisite courses
- level of maturity and motivation
- recommendations of teachers and counselors
- standardized test results
- previous performance in the content area

None of the above should be used exclusively, but rather factored appropriately into the screening process. To promote a successful experience for each student, it is beneficial to carefully consider these factors during the screening process.

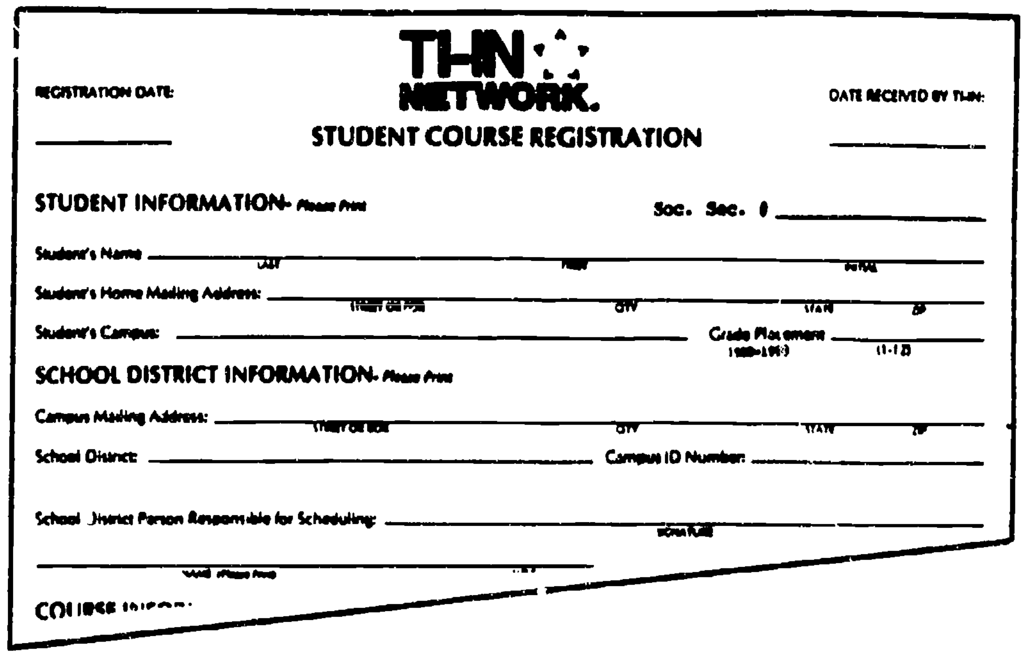
REGISTRATION



Add/Drop

Registering/Adding Students - Each site must officially add (register) a student in a TI-IN course by completing a four-part **Student Course Registration form.** Retain the yellow copy for your records and return the white, pink, and blue copies to the **TI-IN Network Administrative Office at 1000 Central Parkway North, Suite 190, San Antonio, Texas 78232.** A confirmation copy (blue) will be returned to your site as proof of official enrollment.

In order for a student to receive grades for a course, he/she must be officially registered.


REGISTRATION DATE:

TI-IN NETWORK.

DATE RECEIVED BY TI-IN:

STUDENT COURSE REGISTRATION

STUDENT INFORMATION- Please Print

Soc. Sec. #

Student's Name

Student's Home Mailing Address:

Student's Campus:

Grade Placement

SCHOOL DISTRICT INFORMATION- Please Print

Campus Mailing Address:

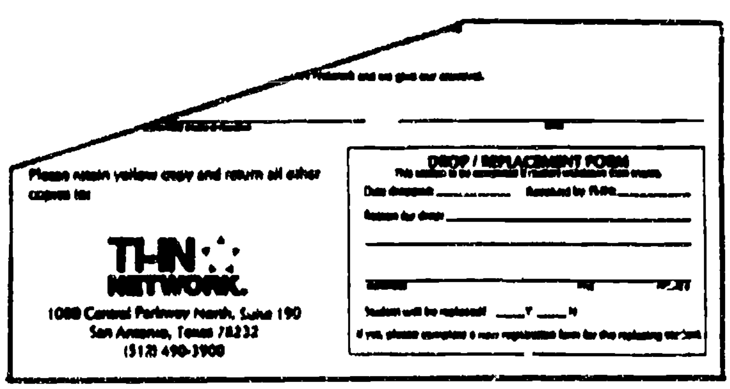
School District

Campus ID Number:

School District Person Responsible for Scheduling:

Withdrawing/Dropping Students - When it is necessary for a site to officially drop a student from a TI-IN course, it may do so by completing the Drop/Replacement section on the yellow (district) copy of the withdrawing student's **Student Course Registration** form. Mail the withdrawing student's yellow "drop" form to the TI-IN Network Administrative Office.

All REGISTRATION/DROP forms must be processed through the TI-IN Network Administrative Office at 1000 Central Parkway North, Suite 190, San Antonio, Texas 78232. A phone call to the TI-IN teacher or to the TI-IN Network Administrative Office DOES NOT officially register or drop a student from a TI-IN course.


Please retain yellow copy and return all other copies to:

TI-IN NETWORK.

1000 Central Parkway North, Suite 190

San Antonio, Texas 78232

(512) 490-3900

DROP / REPLACEMENT FORM

Date dropped

Reason for drop

Student will be replaced? ___Y ___N

COURSE INSTRUCTION

School Calendar

Each TI-IN high school credit course is broadcast **at least 175 instructional days** per school year. Please reference the school calendar included in the current program guide and student registration and course guide for holidays, teacher inservice days and workdays, and beginning/end of six-week and nine-week grade reporting periods.

Some sites may have different requirements for the number of official instructional days. TI-IN Network will work to accommodate individual state instructional time requirements. Please contact the TI-IN Administrative Office (512) 490-3900 to make the necessary arrangements.

Spring break, school holidays, and taping classes - As a policy, TI-IN Network does not provide tapes for courses missed due to spring break or a local holiday. It is required that sites make arrangements to tape these courses and to provide them as make-up tapes when their students return to school. The facilitator will need to schedule a time for students to view these tapes outside of regularly scheduled courses. It is recommended that these tapes be viewed within a week.

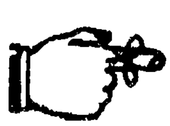
- Sites are responsible for ensuring students meet for the required days of instruction
- Sites are responsible for making arrangements to videotape courses during holidays
- TI-IN courses are approved by the state education agency
- The guidelines that apply to regular courses also apply to TI-IN courses

Grading Policies

Official Grade Report and Reporting Periods - Grades reports are issued by the TI-IN teacher at the end of each grading period (every six or nine-week period as required by local/state policy). These reports are based on a list of officially registered students and are sent in confidential envelopes to the site principal.

Basis of Grades - Course grades are numeric and are based on academic achievement and reflect mastery of course objectives as measured through exams and assignments.

Exemption from Semester Exam - TI-IN Network does not automatically exempt graduating seniors from semester exams in May; however, if a school district has a policy exempting seniors from taking final semester exams, TI-IN Network will honor it. Before the start of the second semester, a form will be sent to each site to expedite this procedure.



Only those students who have fulfilled all course requirements and who are listed on the form will be exempt from their Spring semester exams.

Grading Policies (continued)

Number vs. Letter Grades - TI-IN teachers issue number grades on the grade report. If a site wishes to issue letter grades on its official report cards, it may translate number grades to letter grades according to the local district scale or the following scale:

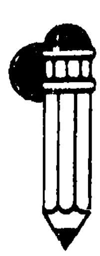
90 - 100 = A
80 - 89 = B
75 - 79 = C
70 - 74 = D
69 - below = F or
actual number grade earned. A grade of 50 is the lowest grade issued on an official TI-IN report form by a TI-IN teacher.

Under NO circumstances will a teacher change a grade unless it is due to **TEACHER ERROR** in computation.

Grades for Drops and Adds - When a student **drops** a course in the middle of a grading period, the site must officially drop that student from the TI-IN course. To officially drop a student from a TI-IN course, your site must complete the Drop/Replacement section on the yellow (site) copy of the withdrawing student's Student Course Registration form, indicate official date of withdrawal, and mail the form to the TI- IN Network Administrative Office. Upon receipt, the TI-IN teacher will issue a WP (Withdraw Passing) or a WF (Withdraw Failing) and the student's actual grade average at the time of withdrawal.

When a student **adds** a course in the middle of a grading period, the site must officially add (register) a student in a TI-IN course. In order for a student to receive credit for a class, a registration form must be completed and mailed to the TI-IN Network Administrative Office.

At the end of the grading period, the TI-IN teacher will issue the student's grade average for that incomplete portion of the grading period. Using the TI-IN average and the student's average (for that same grading period) transferred from the previous school, the site will compute the student's average for that grading period. Although there is not a specific number of days a student must be enrolled during a grading period before a semester grade is issued, the following factors are considered by the TI-IN teacher when deciding whether this semester grade will be issued:



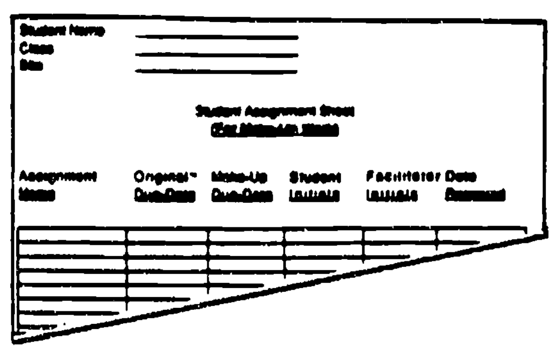
- Site administration's support to the student during the transition phase of enrolling in a TI-IN course.
- The student's previous achievement record in the particular course.
- The course material covered prior to enrolling in the TI-IN course.

Grading Policies (continued)

Cheating - Students who cheat on a homework assignment, quiz, exam, or any other work assigned by the TI-IN teacher will automatically receive a grade of "0" (zero) for that assignment. After the TI-IN teacher discusses this with his/her instructional coordinator, the instructional coordinator notifies the school principal of the incident. The TI-IN teacher will send a progress report to the student(s) involved. The report must be signed by the parents or legal guardians of the student and returned to the instructional coordinator. Other disciplinary action is at the site's discretion according to local/state policy.

Progress Reports - At the end of the first three weeks of a grading period, the TI-IN teacher will mail a progress report to each student whose grade average is lower than 75. This report must be signed by the student's parent or guardian and returned to school. The facilitator ensures that the progress report is returned to the TI-IN teacher. When progress reports are issued, it is recommended that the site principal schedule tutoring sessions by contacting the instructional coordinator. Depending on the need and special circumstances, these sessions may be offered over the toll-free phone line or on air.

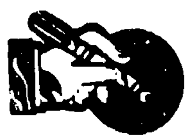
Make-up Work and Late Work - Late work is accepted only in the case of an excused absence. If a student is absent the day homework is due, the homework must be turned in the day the student returns to class. It should be initialed by the facilitator, labeled "excused late work" and dated. If a student is absent the day homework was assigned or an exam given, the student has three instructional days from the date of his/her return to class in which to make up the work or exam. The work should be initialed by the facilitator with the date the student returned to class and the date the work was collected by the facilitator.



Work made up after the three-day deadline will not be accepted. If a student is absent for five or more consecutive days, the facilitator may arrange with the instructional coordinator or the TI-IN teacher an appropriate deadline for making up all work missed.

Incomplete - An incomplete will be given only in case of an extreme emergency which causes the student to miss a major exam within the six weeks, nine weeks, or semester. An incomplete must be worked out with the school principal, TI-IN teacher, and instructional coordinator. If a student misses an exam, he/she will be given a designated period of time in which to make up the exam. No late penalty shall apply to the exam score; however, if the student fails to adhere to the agreed upon deadline, the exam score will automatically revert to a "0" (zero), and the student's grade average will be figured on that basis. Incompletes may also occur if students have completed materials which may not have been received by the TI-IN teacher prior to the cut-off date for that grading period. When this occurs, the grade report will show incomplete. Within two weeks, the grades will be recalculated to reflect receipt of material and a revised grade report will be mailed to the site.

Grade Formula



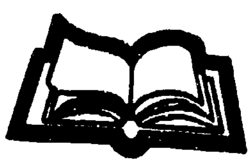
Grades are determined by each teacher based upon the nature of the instruction and course content. At the end of each grading period the total points received of the total points possible is used to derive a numerical grade. Major tests are weighted more heavily than homework and daily assignments. The local school district may choose to use that numerical grade or convert it to a letter grade consistent with their local policy.

Semester grades give equal value to each grading period and the semester exam. End-of-year grades for courses that are two semesters in length are an average of the two semester grades.

Under no circumstances should a school district compromise the integrity of the instructional program by changing a grade except to convert a numerical score to a letter scale.

COURSE MATERIALS

Curriculum Guides



Curriculum guides are available to local site administrators and contain the following:

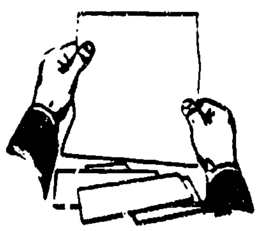
- learning objectives correlated to essential learning elements
- suggested scope and sequence for course objectives and content
- clearly defined learner outcomes
- examples of a wide range of teaching activities and classroom instructional strategies
- examples of the assessment strategies that can be correlated to the objectives

Curriculum guides are available through TI-IN Network at 1000 Central Parkway North, Suite 190, San Antonio, Texas 78232, (512) 490-3900.

Textbooks

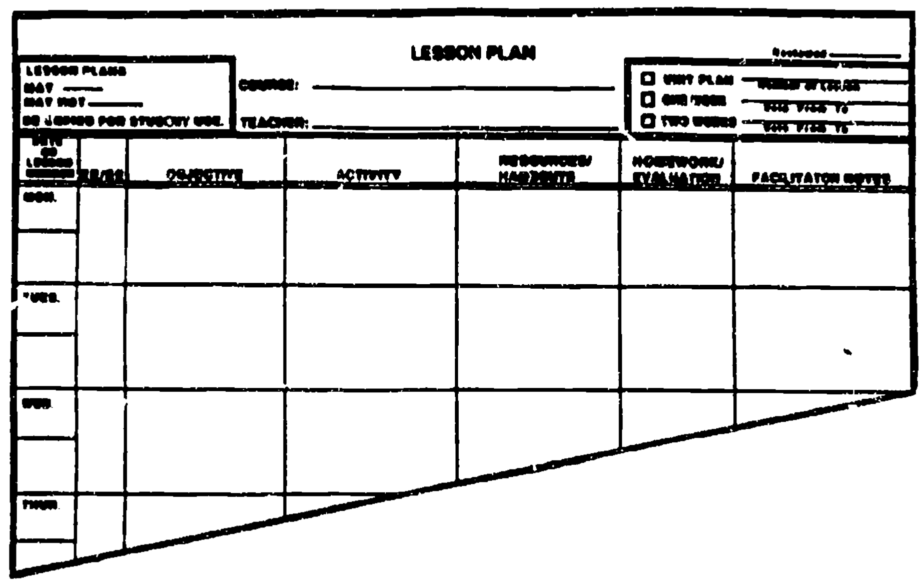
The student registration and course guide lists the required textbooks for each course offered. The program contact is responsible for overseeing the ordering of textbooks and workbooks for students. These should be ordered from the state depository or from the publisher.

Lesson Plans, Handouts, Exams



Lesson plans with accompanying handouts and exams are mailed to each site in advance of the course date. Lesson plans address the objectives of daily instruction but may be presented in various formats, such as unit plans or plans covering a one-week period.

Classroom facilitators need to carefully review the lesson plans for the upcoming week. It is the facilitator's responsibility to make sure that the materials are reproduced in sufficient numbers for the students and ready for that class date.



LESSON PLAN

COURSE:

TEACHER:

OBJECTIVE

ACTIVITY

RESOURCES/ HANDOUTS

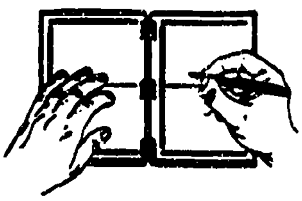
HOMEWORK/ EVALUATION

FACILITATOR NOTES

Comprehensive semester exams are given at the completion of each semester. **Tests, quizzes and homework** are given at the teacher's discretion to assist in evaluating mastery of objectives and to indicate the need for reteaching or a change of pace in instruction.

SECTION III: STAFF DEVELOPMENT COURSES

SCHEDULING

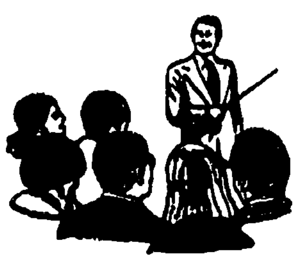


TI-IN Network provides **over 400 hours** of staff development programming to subscribing sites **August - May** each year. Descriptions and scheduling information for these courses are contained in the program guide.

Courses offered during the months of **June and July** fall outside of the 400 hours of programming contracted by sites during the school year; therefore, these courses are offered on a **pay-by-participant basis.**

Hours Contracted by Sites	
August - December	200 hours
January - May	200 hours
Available on Pay-by-Participant Basis	
June - July	Hours Vary

ORGANIZING



The **program guide** contains a listing of the staff development courses categorized by audience and topic.

This information provides assistance to sites in scheduling and organizing courses to meet particular interests and needs. The following are suggestions for supporting the TI-IN Network staff development training on-site in order that participants receive maximum benefit:

Before the programs:

1. Promote by emphasizing programs on "like topics"
2. Send out flyers, reminders, notes to appropriate staff members
3. Duplicate the needed number of handouts for participants
4. Produce a bibliography of materials available locally relating to the topic for distribution during the program

Day of program:

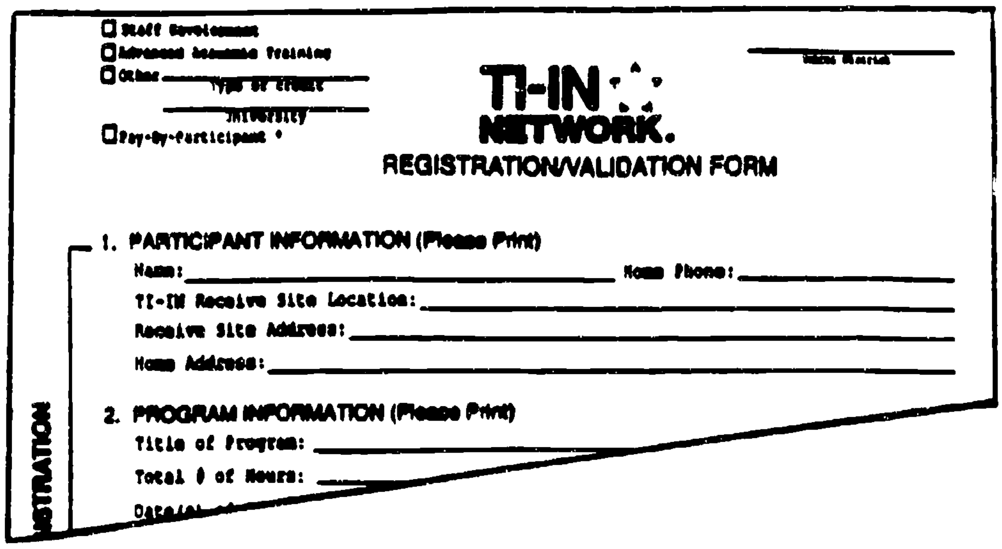
5. Localize - hold a short local presentation before the program begins to set it in context for the audience and/or organize a discussion to follow the program
6. Welcome and orient participants
7. Review equipment operation and encourage call-ins
8. Distribute handouts and any available bibliography

After the program:

9. Encourage participants to complete the evaluation form
10. Follow up with other activities on-site
11. Mail in evaluation forms to TI-IN office

REGISTRATION

When a site joins the Network, TI-IN sends quantities of registration forms to the attention of the program contact. For staff development programming, the following registration form is used.



Staff Development
Pay-By-Participant *
TI-IN NETWORK.
REGISTRATION/VALIDATION FORM

1. PARTICIPANT INFORMATION (Please Print)
Name: ______ Home Phone: ______
TI-IN Receive Site Location: ______
Receive Site Address: ______
Home Address: ______

2. PROGRAM INFORMATION (Please Print)
Title of Program: ______
Total # of Hours: ______

It is very important for program contacts to emphasize the registration process for the smooth operation of staff development programs. The registration process reinforces communication at the site ensuring that

- the building is open after school hours
- the receive classroom is available
- a facilitator is assigned to

  unlock the classroom
  turn on the equipment
  provide assistance in using the talkback equipment
  duplicate/distribute handout materials to registered participants
  verify attendance
  collect pre- and post-assessments (in cases of credit courses)

Registration Procedures for Interested Participants

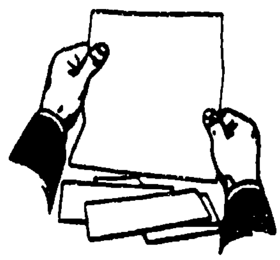
1. Verify with the program contact that the site classroom is available.

2. Complete the registration section of TI-IN's four-part Registration/Validation form. (Since registration information is requested by TI-IN two weeks prior to the date of the specific program, it is advised that site registration take place three weeks in advance.) Review the registration form, verifying each item is complete.

   a. Retain the pink copy;
   b. Submit remaining copies to the program contact (who forwards the gold copy to TI-IN)

For participants seeking credit - After completion of the program, the validation section of this form is signed by the appropriate school personnel, (program contact, facilitator, or other designated personnel), verifying successful completion of the course. (For further details reference Credit Options in this section.)

COURSE MATERIALS



Any required textbooks or materials for course activities are cited in the description of the program guide. Many staff development instructors provide handout materials for full participation. These handouts are sent to the program contact approximately two to three weeks in advance of the course. The facilitator assigned to the particular course is responsible for ensuring that registered participants have copies of handouts at the beginning of the program.

CREDIT OPTIONS

As identified in the program guide, there are several courses which are submitted for credit. The various forms of credit include:

- Advanced Academic Training Credit
  (applicable to Texas, approved through Texas Education Agency)

- Professional Growth Credit

  - California State University, Chico
  - Chapman College, Bellevue, Washington

- Graduate Credit

  - California State University, Chico
  - Mississippi State University, Starkville

- Counselor Credit

  - Texas State Board of Examiners of Professional Counselors
  - National Board for Certified Counselors, Inc.

Adams State College in Colorado, Seattle Pacific University and Chapman College in Washington also review certain courses for graduate credit. For further information on courses offered for credit through these universities, contact the following:

Adams State College	Seattle Pacific University	Chapman College
- Phil Gore Extension Office Adams State College 214 Edgemont Alamosa, CO 81102 (719) 589-7671	- Ralph Kester Division of Continuing Studies Seattle Pacific University Seattle, WA 98119 (206) 281-2121	- TI-IN Network 1000 Central Parkway Suite 190 San Antonio, Tx 78232 (512) 490-3900

In addition to the above, programs may be reviewed for local or state certification credit. Each semester a variety of topics are available for specific audiences such as school board members, counselors, and administrators. Reference the program guide for categorical listings.

CREDIT OPTIONS
(continued)

Advanced Academic Training

To obtain **Advanced Academic Training** (approved through the Texas Education Agency), a participant must do the following:

Registration/Participation

1. Verify that the course is offered for Advanced Academic Training by referencing the program guide.

2. Complete the Registration section of the four-part **TI-IN Network Registration/Validation Form.**

3. Submit this registration form to the program contact.

   a. Reference #3 of this form - School district approval must be obtained prior to registering with TI-IN.

   b. The program contact mails the gold copy to the TI-IN Network Administrative Office, 1000 Central Parkway North, Suite 190, San Antonio, Texas 78232.

4. According to the applications submitted to the Texas Education Agency, approval of credit is based on live and interactive participation; **therefore, credit cannot be given for viewing a tape.**

5. Pre/post-test measurements must be turned in to the facilitator at the end of the program. (The facilitator is responsible for ensuring that these measurements are maintained in the personnel files for future reference of full participation in the program.)

Validation/Certification of Completion

6. After completion of the program, the Validation section of the Registration/Validation form is completed by the appropriate school district personnel indicating successful or unsuccessful completion.

   a. The original (white copy) of the Registration/ Validation form is then mailed to TI-IN Network at 1000 Central Parkway, Suite 190, San Antonio, Texas 78232.

   b. The remaining copies of the form are distributed as indicated -- the school district (pink copy) and participant (yellow copy).

7. The original Registration/Validation form is received by TI-IN and sent to the education service center sponsoring the program. A copy is maintained in TI-IN files.

8. The sponsor issues and forwards certificates of completion to the district superintendent's office for distribution to the individual participant. (Allow 30-90 days for receipt.)

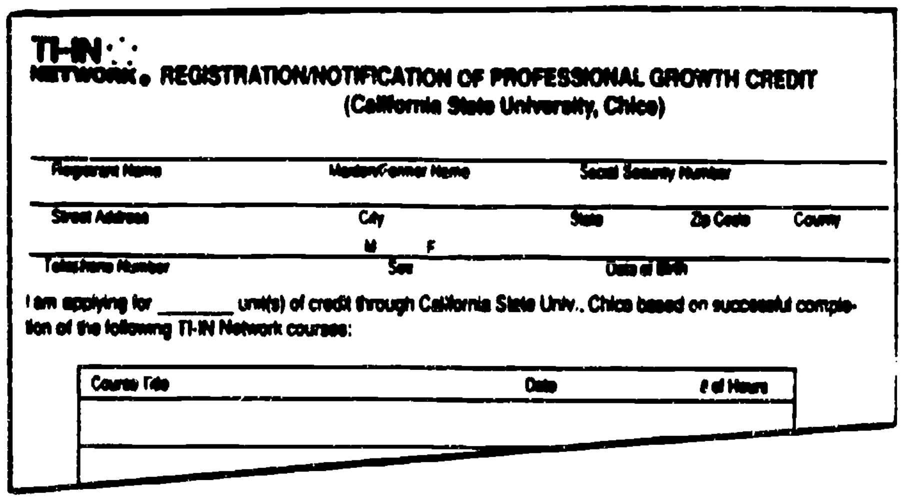
CREDIT OPTIONS
(continued)

Professional Growth Credit

Certain courses are submitted for review toward Professional Growth Credit offered through California State University, Chico and Chapman College in Washington. For information on how to apply through Chapman College, contact the TI-IN Network office at (512) 490-3900. In order to receive Professional Growth credit from California State College, Chico, a participant must do the following:

1. **Attend Approved Courses** - Attend and successfully complete 15 hours of TI-IN courses approved for Professional Growth Credit. (Reference the program guide for courses submitted for credit.) Proof of successful completion must be kept on file at the district for reference. A TI-IN Registration/Validation Form may be used for this purpose. Submit the gold copy to TI-IN two weeks prior to the program date.

2. **Register** - Once 15 hours is completed, obtain a Registration/Notification of Professional Growth Credit form from the program contact.



TI-IN NETWORK • REGISTRATION/NOTIFICATION OF PROFESSIONAL GROWTH CREDIT
(California State University, Chico)

Registrant Name | Maiden/Former Name | Social Security Number

Street Address | City | State | Zip Code | County

Telephone Number | Sex M F | Date of Birth

I am applying for ______ unit(s) of credit through California State Univ., Chico based on successful completion of the following TI-IN Network courses:

Course Title	Date	# of Hours

   a. Secure verification signature required in section SCHOOL DISTRICT VALIDATION OF COMPLETION from the appropriate school official.

   b. Submit original and yellow copy of registration form along with payment of $50.00 to TI-IN Network Administrative Office, 1000 Central Parkway North, Suite 190, San Antonio, Texas 78232.

   c. Retain gold copy for reference. (Program contact maintains the pink copy of this Professional Growth Registration form and the yellow copies of the TI-IN Registration Validation Form for record purposes.)

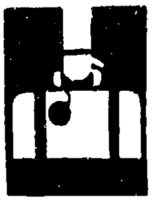
Verification of credit will be sent to the participant from CSU, Chico, according to the CSU, Chico Grade Report Schedule (approximately one month after the semester ends.)

Graduate Credit

Registration details and deadlines for courses offered through California State University, Chico and Mississippi State University for graduate credit are included in the program guide.

SECTION IV: EQUIPMENT OPERATION

TECHNICAL ASSISTANCE



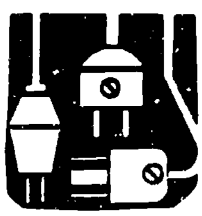
Have no fear -- this section provides quick references to alleviate your worries about using TI-IN equipment. Step-by-step instructions follow to assist you in:

- Powering up your audio/video unit
- Using the talkback equipment
- Using the service telephone
- Receiving hard copy distribution

If you still have difficulty with your equipment after following these procedures, you can receive technical assistance by calling:

TI-IN Maintenance, Monitor and Control
1-800-666-8446

POWER UP



How to "Power Up" Your TI-IN Audio/Video Unit (AVU)

1. **Press** the "ON/OFF" button on the receiver/descrambler to turn it on.
2. **Select** the channel number desired by using the keypad on top of the receiver.
3. **Turn** on the VCR by pressing the "POWER" button.
4. **Turn** on the Multi-Function Interface Unit (MFIU) by pressing the "POWER" button.
5. **Turn** on your television monitor by pushing the "ON/OFF" button.
6. **Press** the TV/video switch one time.

VCR OPERATION: For specific details on how to program the VCR as well as information on other VCR functions, reference the VCR operations manual provided with the AVU cart.

DUAL BAND SITES ONLY: Refer to the dual band receiver manual for full details.

(Note: "Power Down" procedure should be the reverse of the above when the AVU is not in use. However, the AVU should **always** remain plugged into the AC power outlet at the wall.)

TALKBACK

How to Use Your Talkback System

Be sure that the channel for the program you will be participating in has been on at least five (5) minutes before you attempt to use the Talkback.

1. **Wait** for the "READY" light indicator to glow on the MFIU front panel.
2. **Remove** the talkback handset from its cradle (the base station).
3. **Extend** the antennas on both the base station and your handset.
4. **Move** the switch on the handset to the talk position.
5. **Wait** for the "ON-AIR" indicator light on the front of the MFIU panel to glow.
6. **After** the presenter has acknowledged your call, **ask** your question or make your comment.
7. If you receive a "BUSY" indicator, **hang up** and try your call again later.

SERVICE TELEPHONE

How to Use the Service Telephone

The service telephone is designed to provide you with a communications link between your Audio/Video Unit (AVU) and the TI-IN offices, as well as serve as a back-up phone if your talkback system fails for any reason. The phone is located on the back of your AVU. Unlike an ordinary phone, the service phone requires the entering of an authorization code and will only dial numbers stored in memory.

To use the service phone:

1. **Open** the back of the cart and lift the handset from its cradle.
2. **Enter** your authorization code on the keypad and wait until only one LED is left blinking.
3. **Press** the digit corresponding to the number you wish to call:
   - 0 - Technical Assistance Number
   - 2 - Channel 36
   - 3 - Channel 44
   - 4 - Channel 52
   - 5 - Channel 60
4. **Press** "E" for enter. If you enter the wrong digit, press "C" for cancel, then press the correct digit and "E" for enter.
5. **After** the presenter or technician has acknowledged your call, ask your question or make your comment.
6. **Press** any key on the keypad to disconnect your call.

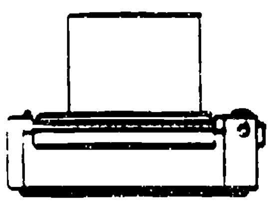
Another feature of your service telephone is the ability to accept incoming calls in the event a network engineer or other representative needs to contact you.

To answer the service phone:

1. **Lift** the handset and press "A" for answer.
2. **When** your conversation is complete, press any key on the keypad to disconnect the call.

If further information is required, please refer to your operations manuals or call the TI-IN Technical Assistance number 1-800-666-8446.

HARD COPY



How to Receive Hard Copy Distribution

To receive hard copy distribution, it is necessary to have the receiver on the proper channel at the time designated. Also, please check to see that there is an adequate supply of paper in the printer.

No printer data can be received while your talkback equipment is in use.

While receiving hard copy data, the "DATA RECEIVE/READY" light on the MFIU will flash on and off. When the transmission is complete, the light will stay on continuously. With the printer "ON-LINE" and loaded with paper, you may now depress the "DATA DUMP" button on the MFIU one time only. The printer will begin printing at this point.

When the hard copy "DUMP" to the printer is complete, you may clear the printer buffer by depressing the "DATA DUMP" button for three (3) or more seconds. You are now ready to receive another transmission.

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TI-IN NETWORK
A Newsletter from the Educational Partnership that Works • Winter 1991 • Volume 4 No. 2

Quality Teaching Receives an A Plus


TI-IN students in German I.

Quality teaching has been TI-IN Network's primary product since its inception six years ago. According to the comments and evaluations we are receiving from principals and superintendents across the nation, it is this quality of the instruction that most distinguishes TI-IN.

This is good news for all of us. However, TI-IN cannot be satisfied with the status quo — no matter how good it is — and we will continue to implement improvements on an ongoing basis.

TI-IN's instructional model uses the best of human resources and technology in a partnership that works to meet the needs of our students. All teachers are certified and have extensive experience in their field. Their knowledge, enthusiasm, creativity and involvement are clear from their performance. TI-IN also consistently updates and upgrades our technical capability to make the equipment easier to use while offering additional functions.

This school year we implemented a number of additions to our system which enhance this model as well as interactivity and communication. These improvements include additions to both the technological and non-technological factors of our instructional capability.

Enhanced Access

On air, our Subscriber Interface Device, SID, makes it possible for teachers, facilitators and students to interact from any subscribing school in the nation. The new Audio Response System, which is used with SID, enables them to call before, during or after class time. The SID enables teachers to send handout materials directly to the school during class through the electronic data distribution system.

Extended Hours

Students can now call toll-free telephone numbers to talk to their teachers before and after school. Office hours have also been extended to include both earlier morning access starting at 7:00 a.m., CST, and into the evening until 8:00 p.m., CST.

More Teaching Assistants

TI-IN has also added nine teaching assistants to increase access for students. The teaching assistants, qualified in their subject areas, can answer students' questions and comments or provide clarification or assistance while a class is in progress. Like the teachers, the teaching assistants are available before and after the class to answer questions.


Students interacting with other students and the TI-IN teacher.

Tutoring, Conferencing and Consultation Available

Students can call their teacher or talk to a teaching assistant before, during or after classes. They can arrange for one-on-one tutoring or audio conference calls. Conference calls can also be arranged for students to discuss problems related to the course with other students as well as their teachers. TI-IN teachers encourage students to call in to discuss any class concern.

Continued on page 5

Introduce Your Students to New Courses This Spring

Jo Ellen Leinbach teaching on the air.

Give your students the leading edge by enrolling them in Marine Science, Sociology and Elementary Analysis this semester. Registration begins January 7 and ends February 15 for these exciting TI-IN courses.

To help as many students as possible experience a TI-IN Network course, we are offering a special introductory rate for this semester only. All TI-IN schools that enroll students in these three courses will receive Special Enrollment Offer certificates entitling them to 50 percent off the regular semester price. This one time only offer applies only to schools who have not previously enrolled students in these courses.

Your students could be introduced to the experience of dissecting sharks in Marine Science, preparing for college with Elementary Analysis, and exploring society and change in Sociology for 50 percent of the regular fee as a part of this limited introductory offer. This special offer is valid only through the first day of class, January 17, 1991.

Marine Science

Marine Science is a laboratory-oriented course that covers concepts ranging from biology to geology. It will introduce students to the study of marine life and will expose them to procedures and instruments used by marine scientists. The course will give students an opportunity to develop an understanding of the abiotic components of the ocean, such as floor spreading, saltwater properties, currents, waves and tides. Forty percent of the class will consist of laboratory exercises and student exploratory exercises.

Jo Ellen Leinbach, TI-IN Marine Science teacher says "Students enrolled in Marine Science will gain an appreciation and understanding of marine life and the scientific properties of the ocean. Students will also complete the class with a greater understanding of what they can do to protect our earth for generations to come."

Ms. Leinbach has always loved science because she believes the principles of basic science apply to everything. She joined TI-IN in 1989 after teaching for four years in Virginia, and working at Sea World of Texas educating visitors about various marine animals.

Sociology

This course includes the study of the nature of sociology, culture, socialization, groups, institutions, communications, cultural development and change. Students will have an opportunity to define sociology, analyze the tools and techniques of sociology and understand sociological terminology.

In addition, students will explore the process of socialization while learning about types of groups and interactions among groups. They will review social institutions, their structures and functions, and understand the roles of beliefs, mores, traditions and folkways in a culture. Social problems in selected cultures and roles of people in various situations also will be studied.

Students will have the opportunity to explore symbolic communications, understand the impact of media on groups and analyze forms of propaganda. They will be introduced to the concepts of cultural and social change, the impact of science and technology upon people and culture.

Pat Riley, TI-IN Psychology and Sociology teacher says, "TI-IN Sociology students learn first-hand the complexities of our ever changing world because they get a chance to share ideas with students from all across the country."

Ms. Riley is a very special TI-IN teacher in that she is a native of San Antonio and has lived here all her life. She says she first became interested in Sociology in high school when she took a Sociology course from a teacher she really admired. After that experience, she decided to pursue the subject in college and earn her degree in Psychology with a minor in Sociology.

Elementary Analysis

This course prepares college-bound students for Calculus I. The development of mathematical systems will be studied with particular emphasis on set theory. Properties of the real number system, concepts and skills involved in the analysis of relations and functions and properties and graphs of special functions are among the topics to be studied. Logic concepts applied in mathematical induction, concepts and skills related to higher degree polynomial functions, and working with sequences and series are also included.

According to Diane Lang, TI-IN Elementary Analysis teacher, "Elementary Analysis is a pre-Calculus course and it gives students another chance to gain skills in mathematics. It is a study that is valid in itself, or it can help with studies in science or technology."

Ms. Lang is a former Peace Corps volunteer who taught math under very basic conditions in Africa (Banjul, The Gambia). Now she has stretched to the other end of the teaching environment spectrum to conduct classes using sophisticated video and telecommunications technology.

"In Africa, teaching materials were very scarce, and sometimes we didn't even have a roof over the class. At TI-IN, everything is super hi-tech. But the experiences do share something -- both have allowed me to teach students who would not otherwise have access to these classes," said Ms. Lang.

Ms. Lang received her master's of science in teaching from Middle Tennessee State University and is certified to teach high school math and science.

Experience and Expertise Count for TI-IN Teachers

Experience and expertise count, and TI-IN makes them a priority when selecting teachers for the Network. J.W. Schaaf, Japanese teacher on TI-IN, exemplifies a rare combination of the best of both of these attributes.

As a senior in high school, Mr. Schaaf had the opportunity to be an exchange student in Japan. Therefore he can understand and relate to the experiences his students often have when encountering a new language.

Mr. Schaaf's experience was so positive that it led him to pursue an education in the language and culture of Japan. And he earned his bachelor's degree in Japanese from Indiana University.

Mr. Schaaf teaching on TI-IN.

"Japanese is a fun language to learn," Schaaf says. "Pronunciation and intonation in Japanese are easy for Americans, and speaking the language is less of a challenge than many other foreign languages."

Like other TI-IN language teachers, Mr. Schaaf incorporates learning about history and culture as part of the acquisition of a language. He says that when many of the students start class, they are already interested in Japanese traditions such as Origami, haiku, judo, karate, the samurai, the tea ceremony, Japanese music and Japanese animation. And, of course, they are aware of the importance of the language in today's global economy and worldwide business community.

Mr. Schaaf says he finds TI-IN students very bright and motivated, and adds that they love a challenge. He notes that TI-IN students are also their own greatest critics and need little prodding to do better.

There is a high level of support from students and staff for teaching Japanese on TI-IN, according to Mr. Schaaf. Several of his students have been to Japan or have been exchange students. Other students have the unique experience of living in communities in which there are Japanese-owned factories, providing them with the opportunity to practice what they're learning with native speakers.

Teaching on TI-IN is demanding, challenging and rewarding, according to Mr. Schaaf. He likes the environment and appreciates the opportunity to work with teachers who are very creative in their approach. Teaching methods, he says, often range from using costumes and games, to developing language videos for classes.

True to the prototype educator who never stops learning, Mr. Schaaf still finds time to be a student. He is presently attending the University of Texas in Austin to complete the courses for his masters' degree in teaching foreign languages.

Mr. Schaaf in kimono, at school in Japan.

"Japanese is a fun language to learn. Pronunciation and intonation in Japanese are easy for Americans, and speaking the language is less of a challenge than many other foreign languages."

J. W. Schaaf

TI-IN Doubles Success at Wheatland High

The TI-IN success story at Wheatland High School in Madrid, Nebraska, is just one example of how the Network has had an impact on small rural high schools all over the nation. This year Wheatland doubled its enrollment — from 15 students last year, to 32 this year — and they have rented a second receiver so students can participate in two classes which may be held at the same time.

According to Principal Ken Beeman, TI-IN has broadened the school's curriculum. And it has allowed the school to meet state requirements in some subject areas. Beeman says it is the quality of TI-IN's teaching that he finds most attractive about the Network.

Located in Perkins County in southwestern Nebraska, the school district covers 280 square miles. Wheatland High School has an enrollment of 44 students, grades 9 to 12. Of these, 75 percent are enrolled in six different TI-IN courses, including Physics, German I and II, Spanish I and Psychology.

Principal Beeman, an innovative educator and administrator, uses technology to enhance the good education he feels his school offers. One indication of the success of Wheatland High School is that more than 80 percent of graduating seniors go on to college for further study.

Another advantage Principal Beeman sees in offering TI-IN classes is the opportunity it gives his students to meet and interact with others from all over the country from a wide diversity of backgrounds.

TI-IN Students Wheatland High School - Madrid, NE

Lisa Jameson, the Facilitator at Wheatland, is also enthusiastic about the Network. The greatest advantage she sees about TI-IN classes is the self discipline they demand of students. She is delighted that students at Wheatland have the chance to take classes such as foreign languages, and advanced math and science courses, because they might not otherwise have this opportunity.

Both Principal Beeman and Facilitator Jameson agree that the most important benefit of TI-IN is the impact it has on the future of smaller schools across the nation. They believe that small schools will now be able to continue and thrive because of the courses and services the Network is bringing to schools like theirs across the country.

TI-IN Offers S.A.T. Success

Joan Davenport Carris is the author of SAT Success *and is a consultant to TI-IN on the course.*

Every year more than one million high school students nationwide take the Scholastic Aptitude Test. Addionally over 360,000 juniors begin practicing for the test every year.

To assist those students who are practicing for the exam, TI-IN Network is pleased to announce that we will broadcast an affordable and effective SAT® preparation course starting in February — Peterson's SAT Success. This is the course that could give your students the edge in preparing for the Scholastic Aptitude Test.

Peterson's SAT Success is a six-hour review course designed for students who want to improve their SAT score. The presenters will review the types of math and English questions asked on the SAT and offer strategies students can use to complete the test. The course places emphasis on understanding the order of difficulty in the questions and how points are gained from partial knowledge of the subject matter. The issue of when and if to guess also will be discussed.

Each student will receive all course materials and sample tests, plus a copy of the popular book *SAT Success*, which has sold more than 250,000 copies.

Pre- and post-review tests will allow students to pinpoint and correct their weaknesses. Questions for the pre- and post-review tests are derived from actual SAT exams. Therefore, the students are exposed to the types of questions they can expect on the SAT.

Students will complete the course with an increased understanding of what abilities the exam is designed to measure as well as how to get the most from their efforts.

Peterson's SAT Success is a four-week course. It will be offered on Saturdays beginning February 9 and will be rebroadcast the next day.

To register your students for the Peterson's SAT Success course, please call Mind Extension University®, The Education Network™ at 1-800-777-MIND. The $95.00 registration fee can be paid with Master Card, Visa or American Express®.

The Scholastic Aptitude Test is a product of the Educational Testing Service which has not endorsed this course

Facilitators Say It Best

Facilitators are the critical link between TI-IN students and teachers. They create the atmosphere and attitude students have about their classes and are the prime motivators in how and when students interact during class. They also influence how often students use the tutoring, call in, homework hotline and other assistance offered.

If you really want to know how TI-IN works in the classroom, facilitators are the people to ask. TI-IN has found them to be one of our greatest supporters and the key to our success with students.

Nancy Hammerberg is a TI-IN Spanish facilitator at Baraga Area High School in Baraga, Michigan. Mrs. Hammerberg volunteered to be the TI-IN facilitator because she wanted to learn more about the system and about speaking Spanish. She also teaches Algebra on a part-time basis.

Nancy Hammerberg

There are five sophomores in Mrs. Hammerberg's class all learning their first foreign language. Despite the newness of the language, she says, both she and the students now feel an integral part of the class and enjoy their participation in it.

As a teacher herself, Nancy Hammerberg has this to say about TI-IN:

"The classes are great — especially from a teacher's point of view. The lessons are well planned, students know what is expected of them, and the teaching methods are very positive and reinforcing.

"Senorita Weill is outstanding and very available to me and the students in my class. The first time they called, the students became very excited. Now, students call in easily and have great communication with their TI-IN Spanish teacher.

Becky McKenzie

"Technical service also has been very prompt and professional for our equipment."

At Princeton High School in Princeton, West Virginia, Becky McKenzie is a French and Latin teacher who also serves as the Facilitator for the German I class. She has some very interesting insights about how TI-IN works at her school:

"Our students have formed a Satellite Club made up of all of the students taking distance learning classes. They have written a constitution and have a goal to learn more about the countries each of them is studying. They plan group activities and study time together. They meet once a month, have dues and require that members help tutor each other.

"I think this is quite remarkable and a very positive reflection on the caliber of TI-IN students. Because TI-IN classes started earlier than our school's regular classes did, these students began their school year three to five days earlier than the other students. In this way, the group got to know each other better and a spirit of wanting to do something special was created. I believe this is a great tribute to our school and to our students, as well as to TI-IN."

Facilitators like Nancy Hammerberg and Becky McKenzie are a critical link in TI-IN Network, the educational partnership that works.

"The classes are great — especially from a teacher's point of view. The lessons are well planned, students know what is expected of them, and the teaching methods are very positive and reinforcing."

Nancy Hammerberg

Quality Teaching... continued from page 1

24 Hour Homework Hotline

An around-the-clock voice mail system has been added to the TI-IN teaching model to provide even more interaction between students and teachers. Students can leave homework questions and teachers can respond with answers by simply recording the message over the phone. In this way, students literally have 24 hour, 7 day-a-week access to communicate with their teacher.

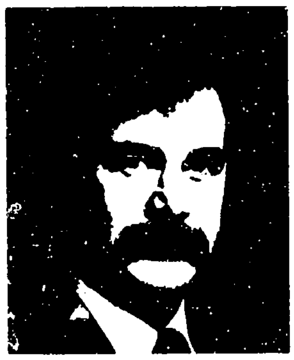
We believe this is an impressive list of additions to our system. Students are offered a multitude of ways to respond and interact. Access is increased for students and facilitators to communicate with teachers or teaching assistants before, during or after class. Hours and days of access have also been increased and a variety of help from tutoring to audio conferencing is offered. Beyond this, voice mail stands ready to make certain no message or communication opportunity is missed.

It is all a powerful combination and one which benefits nearly 6,000 students nationwide. We are happy to report that even in the first semester it has been put to very good use.

Technology, Talkback and TI-IN

"The Integrated Call Answering Network system allows students to ask their teachers for clarification of new material during class. It also provides a vehicle for the teacher to quiz students on their comprehension of the material."

Shane V. Hawkins



by Shane V. Hawkins
Vice President,
Engineering/Network Operations

This fall TI-IN Network announced the expansion and upgrade of its on-air access system for students. With this upgrade, student calls are answered automatically, the location is verified and then the call is routed to teachers and teaching assistants through the Integrated Call Answering Network system (ICAN).

ICAN allows students to ask their teachers for clarification of new material during class. It also provides a vehicle for the teacher to quiz students on their comprehension of the material. And student-to-student dialogues are possible, too. This can be especially beneficial in foreign language classes where the use of dialogues are a critical teaching aid.

When a call is received at the Network, it is validated and routed to the appropriate teacher. On a monitor in the studio, teachers read the school name of the student placing the call. The school information and the students' names can then be transferred to the classroom monitors used by the students. In this way the students have the opportunity to see the name and location of those who are interacting with the teacher and thus put a name with a voice.

Easy Access Technology

Students participate in the ICAN Talkback system via a standard desk telephone equipped with "zero-button dialing." This means that when the telephone receiver is lifted, the call is automatically placed to the Network, the location is verified, and the call is appropriately routed; all without the student pushing a single button. Under the earlier Talkback system, students placed their calls on cordless telephones. However, audio quality on the cordless units was highly sensitive to interference and this made the interaction somewhat difficult for some schools. TI-IN exchanged the cordless phones for improved corded models at no expense to the schools as a part of the Network's ongoing equipment support program and upgrade program.

Greater Participation

Through the ICAN system, up to eight student calls per class can be handled at one time. The system receives the first four and directs them to the teacher. Calls five through eight are sent to the teaching assistants, who offer the students one-on-one assistance. If teaching assistants are not available, students are directed by a voice prompt to either hold until a line is available for the teacher or teaching assistants, or to leave a message on voice mail which the teacher will review after class.

The eight-way telephone system for teacher tutoring also has been very successful. This system permits teacher-to-student and student-to-student conferencing in an "off-line" environment after class, in the evening, or on the weekends as needed. With this system, the teacher can spend more time with students on an individual or small group basis.

Students participating through the ICAN Talkback System.

Upcoming Enhancements

By the time we enter the second semester, TI-IN teachers will be able to access the voice mail messages during class and provide faster response to student questions. And by doing so, teachers will be helping all students by allowing them to hear more of the questions that their peers are asking.

TI-IN continues to develop the text distribution system which has functioned extremely well in limited use. A new scheduler is being tested which allows test queuing by permitting a teacher to upload quizzes, homework assignments and other text for distribution at any future date and time.

The Subscriber Interface Device self-diagnostic programs have been updated and these updates will be installed by the TI-IN field personnel during regular service calls. Other SID software, which can be sent to each school via telephone modem also is also being implemented.

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Did You Catch Us On CBS...

On October 5, people from all over the United States had a quick introduction to TI-IN when Woodlin High School's TI-IN classes were featured on the "CBS This Morning" news program.

In less than five minutes, CBS gave viewers a quick overview of how TI-IN works using Mrs. Altgelt's Spanish II class at Woodlin High School in Woodlin, Colorado, as their example. National correspondent Hattie Kauffman was on the scene reporting from TI-IN's headquarters in San Antonio, Texas, and in Colorado. The story emphasized that TI-IN classes are one way that technology is coming to the rescue in rural American school districts.

Surrounded by 750 square miles of wheat farming and cattle raising, Woodlin is a consolidated district that brings students together from Woodrow, Lindon, and Last Chance. Enrollment K-12 is 104, with only three ninth graders.

Dena Davis, a senior at Woodlin, was interviewed for the story. She spoke with confidence about her school and about the classes, and was an excellent representative of TI-IN students.

Dena remarked that she enjoys the interaction she has with the students in her TI-IN class who are from other parts of the country, such as Texas and Virginia. She also had compliments about Mrs. Altgelt's teaching: "She's a good teacher; she keeps going but gets you to learn at the same time."

You could say Dena is in a class by herself. She is the only student at Woodlin in her Spanish class. But she and her facilitator, Becki Harris are dedicated. They arrive at school at 6:55 a.m. to participate in the Spanish II class. In addition to Spanish, Dena takes Advanced Placement English Literature, broadcast by Western Illinois University through TI-IN.

Dena Davis in her TI-IN class.

Woodlin's Principal Tom George said it was exciting to see CBS take an interest in the area and believes the reporters were impressed with what the school offers its students. He also thought it was interesting for his students to watch the news crew and commented that everyone found it surprising how many hours of film were needed for the short news story.

Become Part of the Partnership

Get the answers to your distance learning questions. If you are interested in learning how your students, teachers and administrators would benefit from the academic resources available from TI-IN Network, please call us today. We have compiled an information kit which outlines the high school credit courses, staff development programs and student enrichment broadcasts available to your district, as well as a summary of the satellite and cable television delivery options.

To receive your free information kit, please call Cindy at 1-800-999-8446. Cindy can also help arrange for an educational consultant to visit your district to tell you more about how to incorporate these innovative educational offerings into your existing curriculum, plus offer suggestions on expanding your teacher in-service program.

Call today and become part of TI-IN Network, the educational partnership that works.

Staff Development Highlights

Dr. Judy Lehr

Understanding the At-Risk Student January 17 4:45PM - 8:00PM CST, CH 36

How do we create schools in which every student can succeed? Specific learning styles and strategies of working with at-risk students and designing effective programs to meet the needs of these special students will be reviewed. Proven strategies to motivate and teach the disconnected child will be shared.

Presenter Dr. Judy Lehr is a professor at Furman University in Greenville, North Carolina, and director of Furman's Center of Excellence Project.

Breaking the Cycle...Completing the Circle January 24 5:00PM - 6:30PM CST, CH 36

Barbara Aiello with her puppets

Participants will meet the new puppet characters in the Kids on the Block literacy program. They will observe performances which feature "Teresa James," a literacy volunteer; "Dale Appleton," an adult literacy student; "Caroline Appleton," Dale's daughter; and "Melody James," Caroline's friend. These performances will introduce the intergenerational cycle of literacy and show how parents learning how to read can foster academic growth in their children. The program is ideal for K-12 teachers, administrators and members of the community at large.

Barbara Aiello is the originator and president of Kids on the Block, Inc., based in Columbia, Maryland.

Expanding Teacher Repertoire: Teaching Style and Strategies (2-part series)
February 12 Part I 4:30PM - 7:45PM CST, CH 36 February 13 Part II 4:30PM - 7:50PM CST, CH 44

A thoughtful model of education will be presented for K - 12 teachers, including descriptions of four basic styles of teaching, learning and thinking. The program will include specific strategies teachers can use to cover content and develop students' power of thought; help students master basic skills; develop students' power to relate personally and become involved; assist students in synthesizing ideas and in reorganizing thoughts to be creative.

Presenter Dr. Harvey Silver is director of program development and Richard Strong is director of curriculum development at Hanson Silver Strong and Associates in Ridgewood, New Jersey.

Dr. Richard Manatt

Evaluating and Improving Teacher Performance (2-part series)
March 12 Part I 5:00PM - 8:00PM CST, CH 36 March 13 Part II 5:30PM - 8:30PM CST, CH 44

What makes one teacher effective, productive and exciting, while another teacher, equally well-intentioned and motivated, is a dismal failure? How do teachers and students interact to create learning? How can the quality of teaching performance be assessed in a valid, reliable and legally non-discriminating way? Answers to these questions and more will be reviewed during this program for supervisors and teachers grades K - 12.

Dr. Richard Manatt is a professor of educational administration at Iowa State University in Ames, Iowa, and the director of Iowa State's School Improvement Projects.

Student Enrichment Highlights

Giving Puppets a Hand
January 11
12:30PM - 12:55PM CST, CH 36

Treat your students to a look at the intriguing world of puppets and pantomime with Rod Butler, puppeteer, and Mary Shaddox, museum docent, from the San Antonio Museum Association.

My Daddy is Learning to Read
January 25
12:30PM - 12:55PM CST, CH 36

Barbara Aiello of Kids on the Block uses life-sized puppet characters to help children understand sensitive and touchy issues. In this program, she will address what it's like to have a parent who can't read.

This program may not be videotaped

Coastal Ecology
February 6
9:45AM - 10:35AM CST, CH 36

Rick Tinnin of the University of Texas Marine Science Institute in Port Aransas will present an overview of our coastal environment with a special focus on the coastal bays and barrier island systems.

A Salty Solution: Marine Aquariums
March 20
9:45AM - 10:35AM CST, CH 36

Learn about the principles of marine aquariums, the process of setting up a saltwater aquarium and three types of filtration systems from Ken Bennight of the Alamo Aquarium Society in San Antonio.

JANUARY 1991

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
	1 LESSON REVIEWS (2ND) 7:00AM - 3:40PM CST, CH 36	2 LESSON REVIEWS (2ND) 7:00AM - 3:40PM CST, CH 36	3	4 WASTE NOT, WANT NOT (SE) 12:30PM - 12:55PM CST, CH 36	5	6
7 TECHNICAL ORIENTATION 4:00PM - 5:00PM CST, CH 36 SPRING REGISTRATION BEGINS	8 JOSTENS (SD) 3:40PM - 4:25PM CST, CH 36 FOREIGN EXCHANGE: JAPAN (TBA) 4:25PM - 4:45PM CST, CH 36 CELEBRATIONS OF CULTURE - PART I (SD) 4:45PM - 7:00PM CST, CH 36	9 LAS NOTICIAS EN ESPANOL (SE) 10:40AM - 11:30AM CST, CH 36	10 GALAXIES: PICTURES OF THE UNIVERSE (SE) 9:45AM - 10:35AM CST, CH 36 SAFETY TIPS FROM OFFICER MCGRUFF (TBA) 4:25PM - 4:45PM CST, CH 36 BY SPECIAL DESIGN: DR. JAMES KERN (TBA) 3:40PM - 4:25PM CST, CH 36 CELEBRATIONS OF CULTURE - PART II (SD) 4:45PM - 7:00PM CST, CH 36	11 GIVING PUPPETS A HAND (SE) 12:30PM - 12:55PM CST, CH 36	12	13
14 NEW SUBSCRIBER ORIENTATION (ADM) 4:00PM - 5:00PM CST, CH 36 GENERAL FACILITATOR TRAINING (ADM) 5:30PM - 6:30PM CST, CH 36	15 BY SPECIAL DESIGN: RICHARD LAVOIE (TBA) 3:40PM - 4:00PM CST, CH 36 FINE TUNING THE CHORAL REHEARSAL PROCESS (SD) 4:00PM - 5:00PM CST, CH 36 BY SPECIAL DESIGN: FRED D'IGNAZIO (TBA) 5:00PM - 7:00PM CST, CH 36	16	17 WORDS, WORDS, WORDS (SE) 7:00AM - 7:50AM CST, CH 36 BY SPECIAL DESIGN: DR. JAMES KERN (RERUN) 3:40PM - 4:00PM CST, CH 36 BY SPECIAL DESIGN: RICHARD LAVOIE (TBA) 4:30PM - 4:45PM CST, CH 36 SOCIOLOGY FACILITATOR TRAINING (ADM) 4:00PM - 4:30PM CST, CH 36 UNDERSTANDING THE AT-RISK STUDENT (SD) 4:45PM - 8:00PM CST, CH 36	18 ADVENTURES IN STORYTELLING (TBA) 12:30PM - 12:55PM CST, CH 36	19	20
21 SPANISH I AND II FACILITATOR TRAINING (ADM) 4:00PM - 4:30PM CST, CH 36 ELEMENTARY/INTERMEDIATE SPANISH FACILITATOR TRAINING (ADM) 5:00PM - 5:30PM CST, CH 36 MARINE SCIENCE FACILITATOR LAB TRAINING (ADM) 6:00PM - 7:00PM CST, CH 36	22 BY SPECIAL DESIGN: HENRY GRADILLAS (TBA) 3:40PM - 4:30PM CST, CH 36 ELECTRONIC HIGHWAYS: LINKING YOUR CLASSROOM TO THE WORLD - PART I (SD) 4:30PM - 7:45PM CST, CH 36 BY SPECIAL DESIGN: MARIAN LEIBOWITZ (TBA) 7:45PM - 8:00PM CST, CH 36	23	24 BY SPECIAL DESIGN: DR. ART COSTA (TBA) 3:40PM - 4:00PM CST, CH 36 FRENCH I AND II FACILITATOR TRAINING (ADM) 4:00PM - 4:45PM CST, CH 36 CAREER MAPPING: MATH (TBA) 4:45PM - 5:00PM CST, CH 36 BREAKING THE CYCLE...COMPLETING THE CIRCLE (SD) 5:00PM - 6:30PM CST, CH 36 BY SPECIAL DESIGN: DR. JAMES KERN (TBA) 6:30PM - 7:00PM CST, CH 36	25 MY DADDY IS LEARNING TO READ (SSP) 12:30PM - 12:55PM CST, CH 36	26	27
28	29 BUILDING STUDY SKILLS: HELPING STUDENTS LEARN - PART I (SD) 3:40PM - 7:00PM CST, CH 36	30	31 BUILDING STUDY SKILLS: HELPING STUDENTS LEARN - PART II (SD) 3:40PM - 7:00PM CST, CH 36			

ADM - Administrative Support Program
SD - Staff Development Program
S-TR - Student Test Review
S-E - Student Enrichment
S-SP - Student Special Program
SP - Special Program
2ND - Replay

FEBRUARY 1991

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
				1 RESISTOR ROBOT RESISTS DRUGS (SE) 12:30PM - 12 55PM CST. CH 36	2	3
4	5 JOSTENS (SD) 3 40PM - 5 15PM CST CH 36 BY SPECIAL DESIGN: DR. JAMES KERN (TBA) 5 15PM - 6 00PM CST. CH 36 CONQUERING STRESS AND TENSION (SD) 6 00PM - 8 00PM CST. CH 36	6 COASTAL ECOLOGY (SE) 9 45AM - 10 35AM CST. CH 36	7 CAREER MAPPING: SCIENCE (TBA) 3 40PM - 3:45PM CST. CH 36 THE NEEDS AND CHARACTERISTICS OF THE GIFTED/TALENTED STUDENT (SD) (2ND) 3 45PM - 6 00PM CST. CH 36 CREATING A WELLNESS PROGRAM (SD) 6 00PM - 8 00PM CST. CH 36	8 VISIT WITH AN ARTIST: GARTH WILLIAMS (SE) 12 30PM - 12 55PM CST. CH 36	9	10
11 FOREIGN EXCHANGE (TBA) 3 40PM - 4 00PM CST. CH 36 MARINE SCIENCE FACILITATOR LAB TRAINING (ADM) 4 00PM - 4 30PM CST CH 36 BY SPECIAL DESIGN: PAM ROBBINS (TBA) 4 30PM - 4 45PM CST CH 36 LATIN I AND II FACILITATOR TRAINING (ADM) 4 45PM - 5 15PM CST CH 36 BY SPECIAL DESIGN: MARION LEIBOWITZ (TBA) 5 15PM - 5 30PM CST. CH 36	12 BY SPECIAL DESIGN: RICHARD LAVOIE (TBA) 3 40PM - 4 00PM CST. CH 36 SOCIOLOGY FACILITATOR TRAINING (ADM) 4 00PM - 4 30PM CST. CH 36 EXPANDING TEACHER REPERTOIRE: TEACHING STYLES AND STRATEGIES - PART I (SD) 4 30PM - 7 45PM CST. CH 36 BY SPECIAL DESIGN: MARIAN LEIBOWITZ (TBA) 7 45PM - 8 00PM CST. CH 36	13 EXPANDING TEACHER REPERTOIRE: TEACHING STYLES AND STRATEGIES - PART II (SD) 4 30PM - 7 50PM CST CH 36	14 MATH IN THE MIDDLE SCHOOL: ISSUES, IDEAS, AND ACTIVITIES (SD) 3:40PM - 7 00PM CST. CH 36	15 WE HELP OURSELVES - PART I (SE) 12 30PM - 12 55PM CST. CH 36 SPRING REGISTRATION ENDS	16 PETERSON'S SAT SUCCESS (STR) 10 00AM - 11 30AM CST. CH 36	17 PETERSON'S SAT SUCCESS (STR) (2ND) 1 00PM - 2 30PM CST. CH 36
18	19 WITHOUT GEOGRAPHY WE'RE NOWHERE (SD) 3 40PM - 7 00PM CST CH 36	20	21 EXPANDING TEACHER REPERTOIRE: TEACHING STYLES AND STRATEGIES - PART II (SD) (2ND) 3 40PM - 7 00PM CST CH 36	22 WE HELP OURSELVES - PART II (SE) 12 30PM - 12 55PM CST. CH 36	23 PETERSON'S SAT SUCCESS (STR) 10 00AM - 11 30AM CST. CH 36	24 PETERSON'S SAT SUCCESS (STR) 1 00PM - 2 30PM CST. CH 36
25 ACT REVIEW (STR) 5 00PM - 7 00PM CST CH 36	26 JOSTENS (SD) 3 40PM - 5 00PM CST CH 36 BY SPECIAL DESIGN: T L. MCGREAL (TBA) 5 00PM - 5 30PM CST. CH 36 DEVELOPING HIGH PERFORMANCE TEAMS (SD) 5 30PM - 7 45PM CST. CH 36 BY SPECIAL DESIGN: DR. ANTHONY GREGORC (TBA) 7 45PM - 8 00PM CST CH 36	27 LATE ROMAN CARTHAGE. THE TRINITY EXCAVATION (SE) 7 00AM - 7 50AM CST. CH 36 INSIGHTS INTO CULTURE THROUGH ARTIFACTS (SE) 1 00PM - 1 50PM CST CH 36	28 CAREER MAPPING: MATH (TBA) 3 40PM - 3 45PM CST. CH 36 DIFFERENTIATING CURRICULUM/ INSTRUCTION FOR GIFTED/TALENTED STUDENTS (SD) 3 45PM - 8 00PM CST. CH 36			

ADM - Administrative Support Program
SD - Staff Development Program
STR - Student Test Review
SE - Student Enrichment
SSP - Student Special Program
SP - Special Program
2ND - Replay

MARCH 1991

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
ADM - Administrative Support Program SD - Staff Development Program S-TR - Student Test Review S-E - Student Enrichment S-SP - Student Special Program SP - Special Program 2ND - Replay				**1** ECONOMICS REVIEW (SE) (2ND) 12:30PM - 12:55PM CST, CH 36	**2** PETERSON'S SAT SUCCESS (STR) 10:00AM - 11:30AM CST, CH 36	**3** PETERSON'S SAT SUCCESS (STR) 1:00PM - 2:30PM CST, CH 36
4 ACT REVIEW (STR) 5:00PM - 7:00PM CST, CH 36	**5** JOSTENS (SD) 3:40PM - 5:00PM CST, CH 36 ELECTRONIC HIGHWAYS: LINKING YOUR CLASSROOM TO THE WORLD - PART II (SD) (2ND) 5:00PM - 8:00PM CST, CH 36	**6**	**7** BY SPECIAL DESIGN: RICHARD LAVOIE (TBA) 3:40PM - 4:00PM CST, CH 36 BE PREPARED TO SPEAK: MAKING AN EFFECTIVE PRESENTATION (SD) 4:00PM - 5:00PM CST, CH 36 CAREER MAPPING: SCIENCE (TBA) 5:00PM - 5:30PM CST, CH 36 FAMILY COMMUNICATION: HOW TO MAINTAIN HARMONIOUS AND LOVING RELATIONSHIPS (SD) 5:30PM - 6:30PM CST, CH 36 BY SPECIAL DESIGN: DR. JAMES KERN (TBA) 6:30PM - 7:00PM CST, CH 36 PLANNING: CREATING A SHARED VISION FOR YOUR BOARD (SD) 7:00PM - 8:00PM CST, CH 36	**8** MORE SCIENCE IS EVERYTHING! (SE) 12:30PM - 12:55PM CST, CH 36	**9** PETERSON'S SAT SUCCESS (STR) 10:00AM - 11:30AM CST, CH 36	**10** PETERSON'S SAT SUCCESS (STR) 1:00PM - 2:30PM CST, CH 36
11 MARINE SCIENCE FACILITATOR LAB TRAINING (ADM) 4:00PM - 4:30PM CST, CH 36 ACT REVIEW (STR) 5:00PM - 7:00PM CST, CH 36	**12** BY SPECIAL DESIGN: DR. ANTHONY GREGORC (TBA) 3:40PM - 4:00PM CST, CH 36 ENGLISH LITERATURE H/AP FACILITATOR TRAINING (ADM) 4:00PM - 4:30PM CST, CH 36 BY SPECIAL DESIGN: PAM ROBBINS (TBA) 4:30PM - 5:00PM CST, CH 36 EVALUATING AND IMPROVING TEACHER PERFORMANCE - PART I (SD) 5:00PM - 8:00PM CST, CH 36	**13** CHRISTIANS IN ROME: HEROES OR VICTIMS? (SE) 7:00AM - 7:50AM CST, CH 36 JAPANESE I FACILITATOR TRAINING (ADM) 5:00PM - 5:25PM CST, CH 36 FOREIGN EXCHANGE: JAPAN (TBA) 5:25PM - 5:30PM CST, CH 36	**14** CAREER MAPPING: MATH (TBA) 3:40PM - 3:45PM CST, CH 36 JOSTENS (SD) 3:45PM - 5:15PM CST, CH 36 BY SPECIAL DESIGN: FRED D'IGNAZIO (TBA) 5:15PM - 7:00PM CST, CH 36	**15** MEDICINAL PLANTS (SE) (2ND) 12:30PM - 12:55PM CST, CH 36	**16** PETERSON'S SAT SUCCESS (STR) 10:00AM - 11:30AM CST, CH 36	**17** PETERSON'S SAT SUCCESS (STR) 1:00PM - 2:30PM CST, CH 36
18 ACT REVIEW (STR) 5:00PM - 7:00PM CST, CH 36	**19** BY SPECIAL DESIGN: DRS. HAL AND BARBARA DESHONG (TBA) 3:40PM - 6:30PM CST, CH 36 EFFECTIVE SCHOOLS: ESTABLISHING LEADERSHIP TEAMS (SD) 6:30PM - 8:00PM CST, CH 36	**20** A SALTY SOLUTION: MARINE AQUARIUMS (SE) 9:45AM - 10:35AM CST, CH 36	**21** BY SPECIAL DESIGN: DR. ART COSTA (TBA) 3:40PM - 4:00PM CST, CH 36 EVALUATING AND IMPROVING TEACHER PERFORMANCE - PART II (SD) (2ND) 4:00PM - 7:00PM CST, CH 36	**22** WOMEN IN INDIA (SE) 12:30PM - 12:55PM CST, CH 36	**23** PETERSON'S SAT SUCCESS (STR) 10:00AM - 11:30AM CST, CH 36	**24** PETERSON'S SAT SUCCESS (STR) 1:00PM - 2:30PM CST, CH 36
25 ACT REVIEW (STR) 5:00PM - 7:00PM CST, CH 36	**26** TO BE ANNOUNCED (TBA) 3:40PM - 7:00PM CST, CH 36	**27** LESSON REVIEWS (2ND) 7:00AM - 3:40PM CST, CH 36	**28** LESSON REVIEWS (2ND) 7:00AM - 3:40PM CST, CH 36	**29** LESSON REVIEWS (2ND) 7:00AM - 3:40PM CST, CH 36	**30** PETERSON'S SAT SUCCESS (STR) 10:00AM - 11:30AM CST, CH 36	**31** PETERSON'S SAT SUCCESS (STR) 1:00PM - 2:30PM CST, CH 36

Convention Calendar

Be sure to stop in and see us at the following conventions.

Jan. 14
Idaho Assoc. of School Administrators
Boise, ID

Jan. 16
West Virginia School Administrators
Charleston, WV

Jan. 23 - Jan. 25
Wisconsin 70th Annual Joint State Convention
Milwaukee, WI

Jan. 23 - Jan. 25
Kansas Association of School Administrators
Wichita, KS

Jan. 25 - Jan. 26
Missouri Association of Rural Education
Warrensburg, MO

Feb. 5 - Feb. 8
Florida Educational Technology Conference
Tampa, FL

Feb. 21 - Feb. 23
Colorado Educational Media Association
Colorado Springs, CO

Feb. 21 - Feb. 23
Louisiana Association of School Administrators
Baton Rouge, LA

Mar. 1 - Mar. 4
American Association of School Administrators
New Orleans, LA

Mar. 3 - Mar. 6
KETC Kentucky Educational Technology Conference
Lexington, KY

Mar. 8 - Mar. 12
National Association of Secondary School Principals
Orlando, FL

Mar. 12 - Mar. 15
TASBO Texas Association of School Business Officials
El Paso, TX

Mar. 16 - Mar. 18
Association for Supervision & Curriculum Development
San Francisco, CA

Mar. 19 - Mar. 20
International Technology Education Association
Salt Lake City, UT

Mar. 22 - Mar. 24
California Association of School Administrators
Anaheim, CA

Mar. 25 - Mar. 27
Satellites & Education Conference
West Chester, PA

Mar. 25 - Mar 27
Montana Edunet
Helena, MT

Mar. 25 - 27
6th Annual Learning By Satellite
Dallas, TX

Apr. 6 - Apr. 10
NAEP'S 1991 Annual Convention and Exhibition
Anaheim, CA

Apr. 13 - Apr. 16
National School Boards Association
San Francisco, CA

Apr. 14 - Apr. 16
National Dropout Prevention Conference
Tulsa, OK

June 13 - June 15
T.I.E. Education Technology Conference
Snowmass Village, CO

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HUNTSVILLE METROPOLITAN AREA

TI-IN
UNITED STAR
NETWORK.

Satellite beams classes to Tennessee

The Associated Press

NASHVILLE — Gov. Ned McWherter says the state is beaming satellite-based television instruction to 13 rural schools during the next year "to make our rural communities competitive for the job market with metropolitan areas of the state."

In addition to the rural schools, the satellite courses will go to a Memphis school for pregnant teens.

Known as the Distance Learning Pilot Project, the $200,000 experiment will provide one-way video equipment and two-way audio equipment to the schools. It also will provide training to local teachers to help the students in the selected schools, Education Commissioner Charles Smith said.

"We are excited about being able to offer the medium of satellite learning to Tennessee students," he said. "The Distance Learning Pilot will enable us to provide flexibility for instruction in classrooms where there are program needs but no available teachers or resources."

The TI-IN Network Inc. in San Antonio, Texas, will provide satellite instructional programming to the 14 schools beginning Aug. 30.

Estel Mills, assistant education commissioner, said non-credit sessions in math and English will be offered, as well as intensive courses to help students review for college entrance exams.

Mills said the satellite instruction is designed to help schools "remove ... geographical and financial barriers by making distance learning affordable."

"For schools which are not yet in session, the early programs can be taped," said Sidney Owen, spokeswoman for the Education Department.

Each participating school will follow a live televised program schedule and course outline and use textbooks approved by the state Department of Education.

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JUN 8 1989

TI-IN UNITED STAR NETWORK.

Experts Discuss Satellite Education In Alabama

TUSCALOOSA: For years students in small, rural schools were unable to take advanced or elective courses because the community didn't have the resources to offer much beyond the basics.

Now that's changing, and satellite dishes are becoming as common as school bells on campuses across Alabama and the rest of the nation as educators look for new ways to offer classes.

"Star Schools--Satellite Education in Alabama," a special program on APT, is a primer on distance education that features experts discussing how students all over the state will have the opportunity to participate in televised classes produced at universities, colleges, and regional education centers.

The half-hour program airs at 8 p.m., Thursday, June 15.

Representatives from Alabama schools, universities, and organizations involved in either receiving or originating these televised lessons will appear on the program. They include Dr. Harry Knopke and Dr. Larry Rainey of the University of Alabama; Dr. Martha Barton of the Alabama State Department of Education; Dr. Pete Mosely, superintendent, Ozark City Schools; Dr. James Mason, assistant principal, Huntsville City Schools; and Nat Andrews of the University of Alabama at Birmingham.

Participants will discuss several systems in use, including the Ti-In Network, a private consortium of distance educators that provides televised instruction to 750 school districts in 29 states. The University of Alabama is a member of the Ti-In Network, which features a system that enables students beyond the studio to "talk back" to the instructor through special phone connections.

Viewers will be able to phone in during "Star Schools; Satellite Education in Alabama" and ask questions about the impact this new technology will have in the state.

The program is a production of University of Alabama Television Services.

TUSCALOOSA, AL
NEWS

UA to expand classes through satellite

By TOMMY STEVENSON
News Associate Editor

Technology designed to provide rural schools with advanced instruction through "interactive" satellite linkups was unveiled on the University of Alabama campus Wednesday.

The technology, which allows students and teachers to communicate via satellite through television monitors and telephone lines, will enable University professors to teach classes beamed into more than 50 Alabama high schools and more than 240 schools in 60 states nationally.

Schools participating in the system, called the TI-IN United STAR Network, also will be able to participate in classes taught by professors at several other universities across the nation and by teachers at schools with the TI-IN Network Inc., the private corporation which originated the satellite instructional concept.

At Wednesday's demonstration at the Bryant Conference Center, two students from Hillcrest High School communicated with teachers at the TI-IN headquarters in San Antonio, Texas, by means of a cordless telephone as the teachers' images and voices were broadcast over a television monitor and projected on the center's large screen.

The students, Antoine Carlise and Jamie Sandford, were able to see and hear the far-away instructors, who were able only to hear them as they stared into television cameras in Texas.

Had the demonstration been an actual class broadcast to other schools in the nation, Carlise and Sandford, as well as the teachers, would also have been able to interact with hundreds of other students across the nation.

Alabama schools participating in the project, which is slated to go on line in March, will get equipment, installation and first-year programming free of charge through federal funding UA will get as part of the network's $5.5 million Star Schools grant.

Star Schools is a federal funding program aimed at improving the instruction of math, science, foreign language and other subjects through the use of telecommunications as as part of Wednesday's ceremonies, Alabama U.S. Reps. Claude Harris and Tom Bevill were thanked for their helping in securing the grant by Acting UA President Roger Sayers through another satellite linkup.

Sayers said Wednesday the new system will "bring Alabama schools into the Space Age" and through the use of the technology "Alabama high schools previously considered educationally disadvantaged will have access to top University faculty, college preparatory course, and BioPrep, an academic program which has received national acclaim."

BioPrep, a 6-year-old honors program which prepares students in rural schools for health careers, is being taught to 1,300 students in 34 Alabama high schools.

The linkup with the TI-IN network will allow the program to be expanded to 21 more schools in the state and others of the 244 schools across the nation participating in the network.

The network is the brainchild of Pat Tinsley, a Texas educator, who initiated the system in that state in 1985.

On Wednesday, Ms. Tinsley said the system is primarily aimed at bringing quality educational instruction to deprived schools districts.

"I can think of no single application of technology that will have a greater impact on society or that can contribute more to the economic development as well as the international competitiveness of our country than applying satellite technology to the needs of our nation's public schools," she said.

West Alabama schools that will be participating in the network include Hillcrest, Tuscaloosa County, Northport Junior High, Riverside Junior High, Holt, West Blocton, Bibb County, Hale County, Akron, Berry, Lamar County, South Lamar, Fayette County, Hubertville, Pickens County, Gordo, Carrollton, Aliceville, Eutaw, Paramount, Livingston, Sumter County, Demopolis, John Essex, Sunshine and Hale County.

News staff photo by Tommy Stevenson

Jamie Sandford, with cordless telephone, communicates by television at the Bryant Center with a teacher in San Antonio, Texas, in a demonstration of the new TI-IN Network.

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Nov 1989

Lessons by satellite

Cherokee students join national class

By Jenny Labalme
Star Staff Writer

CENTRE — Cherokee County High School senior Branden Coleman has never seen the 200 other students in his French class.

That's because they come from California, Colorado, Indiana and Washington, among other states.

It's also because Coleman and his classmates take their daily class by satellite from a teacher in San Antonio, Texas.

A year ago, 56 Alabama high schools received high-tech equipment that brings advanced and specialized courses to remote and small schools that have limited curricula.

"At a small school, you have to look at unique ways of meeting its needs," Cherokee County High Principal Freddy Reynolds says. "At a small school it might be cheaper to take a satellite course than to hire a teacher."

Nationwide 244 high schools are linked to the TI-IN United STAR Network. The consortium is made up of the company TI-IN Network Inc., the University of Alabama and several other universities and educational agencies. Teachers are based throughout the country and the program is aimed at improving math, science and language instruction.

Alabama high schools are participating in the new network program through a $1 million federal grant made available through the University of Alabama.

Coleman is the only Cherokee County High School student participating this semester. Juniors Neal Chesnut and Shane Givens were the first to take a course — Algebra II — off the TV monitor last summer.

Both speak highly of their San Antonio teacher, as well as the course. They say TV classes are similar to traditional school settings and are not entertainment.

■ From Page 1A

"It's not like watching TV, it's like being there," Givens says. "I concentrated just as much as I would have with a teacher in the room . . . and our teacher was great."

Initial studies done by the University of Alabama show little grade difference between the two learning environments. Students in traditional school settings scored four tenths of a grade point higher than with the satellite.

"On a 100-point scale that's virtually no difference," says Dr. Harry Knopke, director of the university's satellite TV program.

Ed Vara, instructional coordinator in San Antonio where many teachers [illegible], says the program is [illegible] every student.

"Our learners must be independent and highly motivated, though they don't necessarily have to be the brightest," he says.

Reynolds says he keeps close watch on his students and is careful about which ones he allows to take a satellite course.

In addition, Vara says it takes a talented instructor — all must have at least three years in the public school system — to teach a course before a camera.

"From an instructional point of view, even though they are not physically in the same room, that eye contact from the screen is what the students relate to," he says. "And it's difficult for teachers because they go a great deal on students' verbal cues."

Each TV monitor comes with a phone. Students can call in toll-free as often as they like, and four students can talk at once. But there are technological snafus.

"We are affected by several factors — weather, sun spots, the quality of the phone line and the satellite signal," Vara says.

Coleman says he's accustomed to the low audibility when his fellow students call in.

"You get used to it," he says. "Though occasionally a bad thunderstorm here can mess the whole thing up."

Technological snarls aside, Reynolds says the option is having no course at all.

"It opens up the boundaries of Cherokee County and breaks down cultural barriers," he says. "Of course I was a little leery of it at first . . . It's still experimental and there are hassles such as scheduling, mailing homework and tests back and forth . . . nothing great happens suddenly."

Each student is required to call in at least once a week and a local teacher monitors the homework students do and mail in. To personalize interactions with 200 students, teachers often wear a school's T-shirt when it has a football game that day.

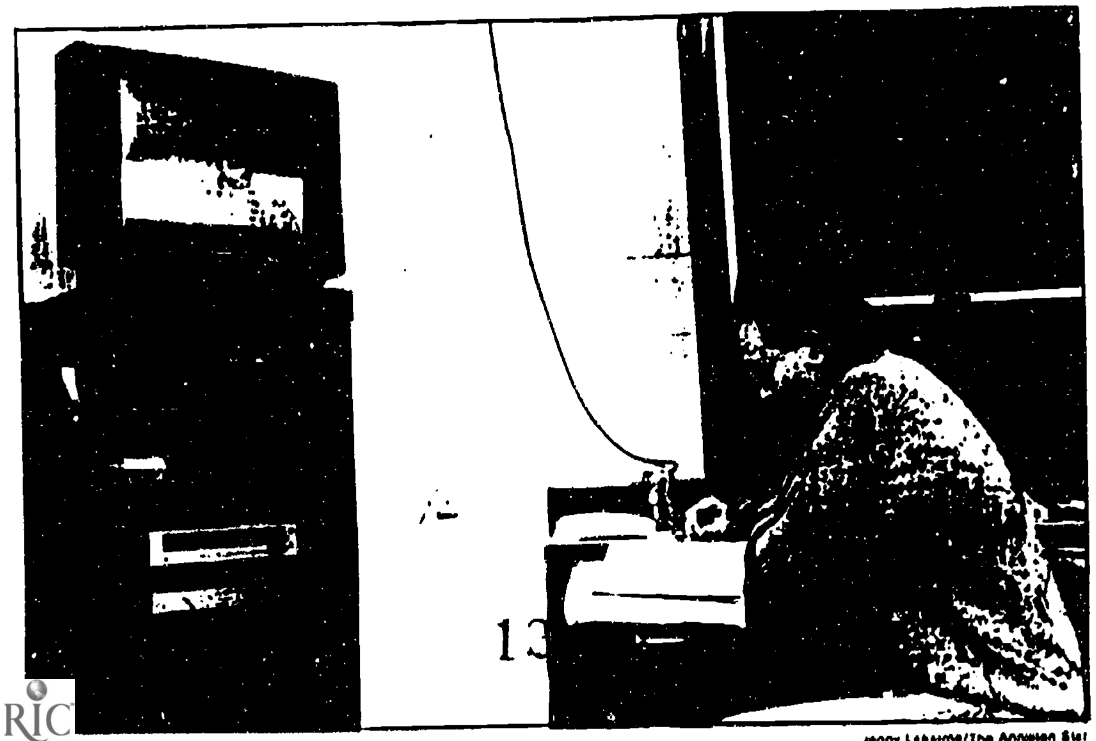
"The number of students seems overwhelming, but we find we can be effective despite those numbers," Vara says. "And we recommend that there not be more than 10 people around a monitor."

Vara says it's a myth to think that teaching is unable to move beyond traditional settings.

"We may not have the same number of student/teacher interactions, but teachers spend less time disciplining and the quality of interaction off the air is great," he says. "Students can call up the teacher during office hours, and they call because they want to know."

Vara emphasizes the program's objective is not to displace teachers.

"It's not a panacea and won't solve all problems," he says. "It's an alternative for kids who wouldn't have the course otherwise."



Jenny Labalme/The Anniston Star

Cherokee senior Branden Coleman in French-via-satellite class

TUSCALOOSA, AL.
NEWS
D. 30,000 — S 36,000
TUSCALOOSA METROPOLITAN AREA

Oct 1989

Good show

> The program uses the talents of one specialized teacher to serve a variety of locations.

Fifty-six rural high schools in Alabama are supplementing their course offerings and their faculties through participation with TI-IN United STAR Network, which offers televised courses in such areas as math, science and foreign language.

It's a program with a bright future.

TI-IN affords small, isolated school systems the opportunity to offer advanced course work in subject areas which they might not ordinarily be able to fund alone. Courses taught through TI-IN help rural youngsters better prepare for intensive programs in college, particularly in math and the sciences.

Instruction is transmitted simultaneously from an instructor in one location to students in numerous sites. For example, an anatomy and physiology class offered by a University of Alabama doctoral student is transmitted from a UA campus television studio via satellite to 11 high schools in Alabama and 47 other mostly rural schools across the nation. About 275 students nationwide are involved in that class. The students and teacher communicate in class over the telephone.

Shirley Cornelius, who facilitates TI-IN classes at Gordo High School, one of the sites where the anatomy

Gordo students learn a great deal from the course even though the teacher is miles away. She said personnel at the receiving sites handle prepared materials, such as tests sent from the teacher to the class sites.

But the program does more. UA broadcast and film professor Jennings Bryant, who is evaluating the system, said such "national classrooms," taught enthusiastically, afford students a chance to share cultural experiences by communicating classroom to classroom with others who are involved.

The TI-IN program uses technology to maximize the availability of a teacher to serve a need in a variety of locations. Such efforts seem especially well-suited for students who are highly motivated to learn, students mature enough to learn without the presence of a classroom teacher but who are assertive enough to "tie into" the program by using the telephone.

It's an exciting program, uplifting for rural Alabama students and destined for a

THE CHOCTAW ADVOCATE • SEPTEMBER 14, 1989 • PAGE 5

Students learning to speak, write Japanese

By Carol Shelton

BUTLER — Thirteen students at Choctaw County High School are among 280 nationwide who are participating in learning the Japanese language through a TV program on the TI-IN Satellite Network.

Students gather in the computer room at CCHS for 50 minutes a day to watch Sukero Ito instruct them in mastering the art of the foreign language.

Ito is head of the Foreign Language Department at the University of Alabama and through the means of modern technology his classroom instruction has already enabled the students to speak several Japanese phrases after only a week of classes.

Assistant Principal Nancy Chaltry, who serves as facilitator for the class, is enthusiastic about the program. "It is so exciting that our children are going to learn a foreign language that is taught by a native Japanese," Chaltry said.

Japan has become the leader in electronic innovations, she said, so the kids realize how fortunate they are to have a knowledge of this language which may benefit them in their chosen careers.

In addition to classroom instruction, students may call the instructor on the phone while the program is being broadcast.

Friday was designated for CCHS students to participate in a call-in to the instructor, along with three other schools, and several students were able to talk to Ito and speak Japanese sentences to him, while at the same time, hearing themselves on the air.

The instructor commended the students on their grammar and pronunciation of the Japanese language.

Students are in the process of sending in information and photographs of themselves to Ito, which will be flashed on the television screen when a particular student calls in, Chaltry said.

Funding for the class is through the BIO-PREP program, and students in the program are given first priority for the class, Chaltry said.

The only cost to the student is for a workbook.

Lessons are sent to Chaltry on a weekly basis and if Ito has additional work sheets for the class there is a printer hooked to the satellite system which enables him to send the work to the students while they are in class.

Testing is supervised by Chaltry, but all grading is done by Ito. Homework is handled in the same manner, with Chaltry over-seeing the homework and then submitting reports to Ito on homework and on classroom attendance.

"I have not had anyone in the class fail to turn in homework," she said.

From a teacher's point of view, Chaltry said the language appears to be much more difficult than English, with many more forms of the alphabet than our language has.

Presently, the students are studying the hiragana form of the language, and according to Ito, they will learn three forms of the language, with each one having about 50 symbols.

The students have a toll-free telephone number they can use to call and talk with Ito at the university during his office hours if they have a problem or question about the course.

Even for students at the high school who are not taking the class, it is not unusual to hear some of them speaking the language in the hallways, Chaltry said.

No romanization is used in the language. Students learn to pronounce and recognize the Japanese syllabary. By introducing the syllables and symbols, it reinforces the learning process. In addition, students are more likely to develop a "pure" pronunciation through the use of the syllabary. "It is amazing to be living in Butler and having our kids exposed to this type of learning," Chaltry said.

CCHS student Tricia Irby (top left, with phone in hand), talks to instructor Ito during the Japanese language class.

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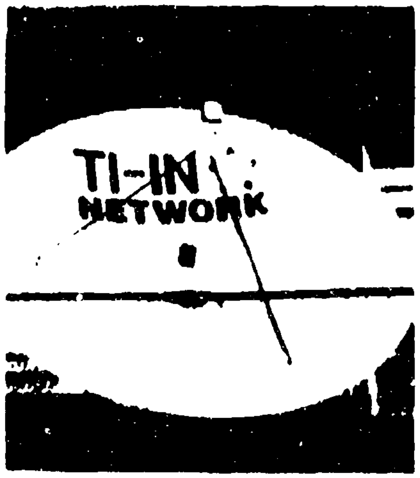
SELMA, AL.
TIMES-JOURNAL
D. 12,000 — S. 12,000

Students learning by satellite

Dallas County School System students will soon be taking courses in science, math and foreign languages via satellite through the TI-IN United Star Network.

All three high schools in the county system will be served by the program, which provides a menu of instructional programs to some of the nations most educationally disadvantaged schools. The venture is made possible by cooperation between public education and private enterprise with the necessary equipment being paid for by a $5.6 million grant made to the University of Alabama.

The program will not replace teachers in the classroom but will greatly expand their resource material to offer students learning opportunities they would not normally be afforded.



TI-IN dish

In addition to student learning programs, teachers will also benefit by satellite programming for teacher training and staff development.

Aside from the satellite receiver dish, the equipment includes an audio-visual unit that allows students to record lessons for future review and a telephone link unit through which students may interact with the instructors on the satellite system. Remedial, as well as advanced curriculum courses will be offered to the schools through this system.

According to Dallas County School Superintendent Marvin Warren, equipment has already been installed in the three high schools serving the Dallas County Schools system — Keith, Dallas County and Southside high schools.


From l
Jenny M

TUSCALOOSA, AL
NEWS
D. 30,000 — S. 36,000
TUSCALOOSA METROPOLITAN AREA

OCT 3 1988

TI-IN UNITED STAR NETWORK.

Visionary concept implemented here

The late Marshall McLuhan, the visionary thinker of the '60s who coined the phrase "the medium is the message," also predicted that through advances in technology, chiefly in television technology, the world would one day become a "global village."

That hasn't quite come to pass yet, but anyone who attended the demonstration of TI-IN United Star Network at the University of Alabama's Bryant Conference Center last week would have to conclude that era of the "national classroom" has dawned.

The TI-IN network, which links more than 240 schools in 40 states via interactive satellite links, will be providing services to more than 50 schools in Alabama, including many in Tuscaloosa County and West Alabama, by early next year through federal funding secured by the University.

The new technology will make it possible for students in Alabama classrooms to "attend" classes broadcast from states all over the nation by viewing a television monitor.

The classes, beamed to satellite dishes at the schools, are much more than simple exercises in passive TV viewing, however.

One of the unique aspects of the TI-IN network is that every classroom participating in the network will be equipped with special cordless telephone that will allow students to call and ask questions of their televised teachers.

UA's role in the network will also be more than simply that of facilitator for state schools. The participation in the system will allow the University to expand its BioPrep honors program, which prepares students in rural schools for health-related careers, to more than 20 additional schools in Alabama and hundreds more across the nation.

Like some of McLuhan's ideas, the network is a visionary concept which should grow by leaps and bounds as it provides quality educational opportunities for school systems that might not otherwise be able to offer them.

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ENTERPRISE, AL
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Sep 25 1989

TI-IN UNITED STAR NETWORK.

TV is a teacher for some Alabama students

TUSCALOOSA (AP) — With the help of "Slim," a skeleton, and high technology, Marilyn Stephens is getting information to students in rural schools that often is not available in wealthier, urban schools.

Until this fall, Jason Dunn, a senior at Berry High School in Fayette County, and other students faced major disadvantages in following their hopes of entering medical professions.

Now, he and nine classmates are studying anatomy and physiology under Stephens, a University of Alabama teacher they have met only on the television tube.

Her lectures are transmitted via satellite to 11 rural high schools in Alabama and 47 other schools from California to New York.

The students can press a button on a cordless telephone and talk to her to ask questions.

When a student in Oregon

Education

wants to know what separates the abdominal cavity from the thoracic cavity, Dunn can hear the question and Stephens' answer.

"It's interesting hearing other students call in from all over the country," he said. "We weren't sure what to expect at first, but we've gotten used to it. It seems as if she is in the room with us now.

"Being from a small school, I never would have had the chance to take a class like this."

The 56 Alabama high schools taking part in the satellite network got the equipment, installation and first-year program free, at an average value of $15,000 per school. The university received federal money as part of a $5.5 million Star Schools grant to the TI-In U.S. STAR Network, an instruction network formed by the university and eight other universities and education agencies in the country.

The program is aimed at improving math, science and foreign language instruction.

In addition to Stephens' anatomy and physiology class, the university offers one in Japanese language taught by Sukero Ito. Seven rural Alabama schools are enrolled in that class, along with students from 39 other schools in the country.

"The TI-In Network gives the most isolated, smallest and perhaps disadvantaged schools access to quality courses and master teachers that equal any instruction in the country," said the university's Larry Rainey, who helps coordinate the science class.

"In fact, what the network can offer is better than what is available in even the best-funded schools because of the technology we have. For example, Marilyn Stephens will be bringing live discussions with heart surgeons to her students, and live discussions from emergency rooms with emergency medical technicians.

"Few, if any, schools would have access to this kind of instruction otherwise, no matter what their size or budget."

Stephens said there is another advantage.

"Young people today are very video-oriented," she said. "They watch a lot of TV and they respond to that medium well. They really oftentimes take what's said on TV more seriously than what they might hear in a regular classroom."

Since her classes can be recorded, students who miss a class or who want to get a better understanding of a lecture can replay the class at home.

The students participate in labs and take tests as they would in any other science class.

CALIFORNIA STATE UNIVERSITY

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(illegible: San Bernardino metro area)

MAR 31 1989

TI-IN UNITED STAR NETWORK DEMONSTRATION

By Marge Dorsey

Trona students in K through Adult Independent Study will be able to benefit from the Ti-in United Star Network System which was recently approved for the Trona Schools.

At a previous school board meeting, Gordon Teaby, Principal of Trona High School, explained to the Board and public present, that the school had received an award to help cover the costs of hardware and programming expenditures for the year October 1, 1988, through Sept. 30, 1989. The award to Trona was $18,000. That amount takes care of everything this year.

Rozella Eyre provided a demonstration at the March meeting in the high school library of how the system works. Trona students will be able to take a course on their via television and receive credit for it. They will be able to be in direct contact with the instructor via a special phone. An instructor will answer their questions on television where others in the class will be able to hear.

Teaby said that all instructors are accredited teachers.

Several programs are already scheduled for Trona Schools. The elementary school may be able to watch a presentation concerning effective Schools with instructor, Larry Lezotte on April 20; Reducing Discipline Problems in the Classroom with Harry Wong on April 24, and Creating a Healthy School Culture, by Terence Deal, on May 4.

Teaby said that there are two summer programs coming up, one of which is Algebra II.

Teaby presented information about the motorized Ku/C band educational satellite system. With the Ku/C band, the capabilities of the educational satellite system will be increased to pick up the Public Broadcasting System (PBS) NOVA, and others. Students will be able to watch Congressmen in Washington, D.C., in action.

The total cost is $7,000, and funding will be jointly shared with one-third financing from the Associated Student Body, Trona Booster Club, and the School District.

Joe Ryan asked if there would be a T.V. set in every room, and if so, would that incur additional expenditures. Teaby said that most likely, the programs would be shown in a centralized place. There are currently five monitors at Trona High School with an equal number at Trona Elementary School (K-6).

Teaby said that Jeff McCurdy, president of the Trona Booster Club, said the group would be willing to buy a satellite dish. McCurdy was publicly thanked by the Board of Trustees.

Student ACtivities Director Chuck Spence said that there are some excellent programs available and the school is very excited about it.

Teaby said that Bob Bell, audio-visual director for San Bernardino County Schools, has pledged staff and time to instruct Trona staff in the use of the equipment.

Teaby added that these Ti-In with satellite programs will "open up a whole new world," for Trona Schools

DOS PALOS, CA
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FEB 1 1993

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TI-IN UNITED STAR NETWORK.

The world in a dish

132

Employees of the Ti-In United Star Network from San Antonio install a satellite dish in front of the Dos Palos High School library. The satellite link-up, funded through a federal grant, will bring interactive, university classes from all over the country to the high school for use by the entire community. (Photo by David Toussaint)

T. H. E. JOURNAL
SANTA ANA, CA.
10 X YR. 97,585

TI-IN
UNITED STAR
NETWORK.

I - 85

Satellites Are Hub of Instructional Network

The TI-IN United Star Network offers elementary and secondary schools direct student instruction and teacher training via satellite-delivered broadcasts.

Subjects include mathematics, foreign languages and the sciences. Programs are interactive; teachers and students are provided with the automatic Talkback system, and students have use of electronic writing tablets and an electronic "test and tally" polling device.

The United Star Network is a result of a partnership between private enterprise and public education institutions. TI-IN Network, Inc. installs receive "downlink" hardware in member schools and provides ongoing technical assistance. Member schools can then access all United Star Network and all TI-IN Network programming. *TI-IN Network, Inc., San Antonio, TX, (512) 490-3900.*

Write No. 213 on Inquiry Card

TI-IN
UNITED STAR
NETWORK.

TRONA, CA
ARGONAUT
—W. 1,500—
RIVERSIDE SAN BERNADINO METRO AREA

FEB 23 1990

TI-IN NETWORK NEWS

Parents and other interested community members are invited to attend a program at Trona High School on Thursday, March 1 from 3 P.m. to 6:15 p.m. This presentation "Dealing with At-Risk Students: From Losers & Fakers to Movers and Shakers," will be broadcast live over TI-IN Network and will feature Mark Towers.

This program will present several "hands on" strategies and classroom activities for teaching at-risk students. The objective of this presentation is to help educators create a more positive and productive school for at-risk students and, in turn, lower the drop-out rate. Six distinct areas related to raising of self-esteem will be discussed.

Towers, educational consultant from Overland Park, Kansas, is a former teacher, coach and counselor. A licensed professional counselor, Towers is a member of the National Speakers Association, the American Society of Training and Development and is a former television series host. He has presented to school systems, colleges, associations and corporations.

TI-IN Network is a satellite broadcasting network serving more than 950 school districts in 29 states. All of TI-IN's programs are live and interactive. Participants can call in on a special telephone and talk, not only to the presenter, but to other participants as well. The Network remains on the air year-round and offers a wide range of staff, teacher, student, and community programs. For more information contact Rozella Eyre at

MISSISSIPPI STATE UNIVERSITY

ACKERMAN, MS
CHOCTAW PLAINDEALER
W. 2,289

FEB 9 1989

TI-IN UNITED STAR NETWORK.

Area Schools To Get MSU Teaching Beams

Thirty-four Mississippi schools will soon be participating in a satellite-aided instructional program with Mississippi State University and the TI-IN United Star Network.

Through the San Antonio, Texas-based network, students and teachers in kindergarten through the 12th grades at some federally designated Chapter 1 and Indian schools will receive live instruction in mathematics, science and foreign languages.

Late last year, the U.S. Department of Education awarded a total of $5.6 million for the purchase of needed electronic equipment and educational programs in Mississippi and 15 other states. The purpose of the grant was to provide better learning opportunities for some of the nation's poorest schools by overcoming barriers of geography, wealth, race and culture.

Most Mississippi schools are classified Chapter 1 since they, like the federally run Indian schools, often lack broad academic offerings found in metropolitan areas.

Mississippi State received $750,000 as its share in a nine-member consortium with the TI-IN Network. MSU's Colleges of Education and of Arts and Sciences are developing instructional programs.

Though some local Mississippi school boards have not yet formally agreed to participate in the satellite network, all are expected to do so by late February, according to Dr. James Wall, associate dean of MSU's College of Education.

The satellite teaching program is scheduled to be fully operational by the beginning of the fall semester.

Programming will also involve school administrators, parents and the local community as part of an integrated career guidance effort.

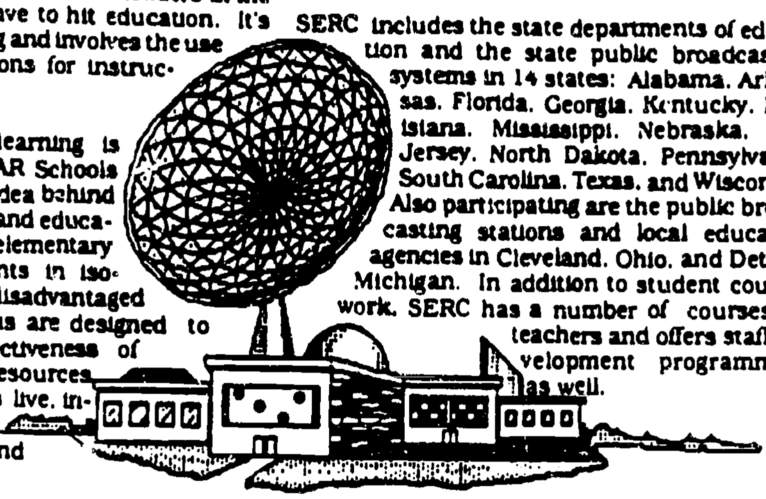
The schools selected from our area are Ackerman Elementary School in Ackerman, Nanih Waiya High School in Louisville and Oktibbeha County School District, Starkville High School in Starkville.

STAR Schools Legislation Brings New Courses to State

Some people would have you believe that children watch too much television and that this is causing a decline in our educational system. In Mississippi, however, we're encouraging students to glue themselves to the tube and we're helping them to do it in class!

Mississippi is among the national leaders in the latest technological wave to hit education. It's called distance learning and involves the use of satellite transmissions for instruction.

Nationally, distance learning is part of the federal STAR Schools legislation. The basic idea behind STAR Schools is to expand educational opportunities to elementary and secondary students in isolated, small, and disadvantaged schools. The programs are designed to demonstrate the effectiveness of telecommunication resources using such methods as live, interactive instruction, video instruction, and microcomputers.



Here's how it works. Through satellite technology, a teacher in one location instructs students in another location, sometimes thousands of miles away. In one project, students in Mississippi are taking beginning Japanese from an instructor in Nebraska. Lessons are beamed live to the Mississippi schools by satellite with our students watching the instruction on a television set in the classroom. Students can use a telephone in the room to ask questions of the instructor. When this occurs, all other students across the country who are viewing the lesson can hear the question and the answer. Also, supplemental lessons can be distributed to participating schools on videotape.

STAR School Programs are designed to offer courses not normally available to rural and disadvantaged students. This is done primarily by beaming instruction to these students by satellite. Students then communicate with instructors over the telephone.

All classes have an adult monitor in the room with the students and, just like other classes, homework is assigned and tests are given.

There are four demonstration projects that have been funded through this legislation and Mississippi is participating in three of those, the Midlands Consortium Star School Project, the Satellite Educational Resources Consortium, and the TI-IN United Star Network, Inc.

The Midlands Consortium is a partnership linking public and private elementary and secondary schools, state departments of education, state school board associations, and leading universities in five predominately rural states: Alabama, Kansas, Mississippi (the University of Mississippi), Missouri, and Oklahoma.

SERC includes the state departments of education and the state public broadcasting systems in 14 states: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, Nebraska, New Jersey, North Dakota, Pennsylvania, South Carolina, Texas, and Wisconsin. Also participating are the public broadcasting stations and local education agencies in Cleveland, Ohio, and Detroit, Michigan. In addition to student coursework, SERC has a number of courses for teachers and offers staff development programming as well.

TI-IN includes six partners: the University of Alabama, Cal State-Chico, Western Illinois University, Mississippi State University, the North Carolina Department of Public Instruction, and the Texas Education Agency.

STAR Schools can have a dramatic effect on Mississippi schools. Instructional offerings in the programs are geared to science, mathematics, and foreign languages — three critical areas in many of the state's smaller schools.

Courses offered are in addition to those already available at the local school -- for example, a fourth-year language course or an advanced placement science or math course that the school is not currently able to offer. This type of course offering allows Mississippi students to complete entrance requirements needed for college.

The STAR School Projects are designed to provide two distinct types of programs. Up to 25 percent of the funds available can be devoted to the development of new course offerings. The other aspect of the project is the offering of established courses to a wider range of students.

Mississippi is among the leaders in this latest technological step, participating in three of the four federally-funded STAR School Projects.

By next fall, 112 schools will have satellite dishes. Over the next few years, we anticipate more than 200 schools in Mississippi will have access to STAR School Projects through the addition of satellite downlinks.

With continued federal funding and increased course offerings, don't be surprised when Mississippi students are encouraged to spend even more time in front of the TV.

Houlka Student Testifies for STAR Schools

A simple introduction wouldn't normally cause such a stir — even at a Congressional hearing. But when Houlka High School senior Albert Moore stepped up to the podium to speak, it was sheer pandemonium.

Albert is one of the Mississippi students enrolled in the beginning Japanese course. He was invited to speak before a formal field hearing being conducted in Jackson by Senator Thad Cochran in April. The hearing was designed to provide Congress with information on the STAR School Projects.

Albert did such a good job in his initial testimony on the program that Senator Cochran invited him to speak at another hearing and before selected Congressional aides in Washington, D.C., the following week. Each time, his testimony made quite an impression.

The reason — Albert's introductory remarks: "Ohayoo-gozai-masu. Wataahi-wa Albert Moore-desu. Amerika-jin desu. Kookoo san-nensee-desu." After the court reporter recovered, Albert translated, "Good morning. I am Albert Moore. I am an American. I am in the 12th grade."

Albert is a product of the STAR School Projects in Mississippi, taking both beginning Japanese and Probability and Statistics. The latter has caused Albert to switch his choice of careers from medicine to mathematics. In fact, he says he wants to pursue a career in education and teach math.

Prior to STAR School legislation, Albert didn't have access to either course. He is just one example of the impact of these programs. And it will be a long time before the folks in Washington forget this example.

STARKVILLE, MS
NEWS
D. 8,079

OCT

TI-IN UNITED STAR NETWORK.

National satellite hook-up to provide instruction

High-flying satellites will soon mean better learning opportunities for some of the poorest schools in Mississippi and 15 other states as the result of $5.6 million given by the U.S. Department of Education.

Mississippi State University is receiving $750,000 as its share in a nine-member consortium with the TI-IN (pronounced "tie in") United Star Network. Through the San Antonio, Texas-based network, students and teachers in kindergarten through the 12th grade will receive live instruction in mathematics, science and foreign languages.

Programming also will involve school administrators, parents and the community in an integrated career guidance program.

Ralph E. Powe, MSU vice president for research, said the goal of the program is to equalize access to academic resources by overcoming barriers of geography, wealth, race and culture.

"We will provide downlink equipment and educational programs to 33 Mississippi schools the first year and 25 additional schools the second year," he said. "I anticipate installation of equipment will start around the first of the year and actual instructional programs will begin in the fall."

Mississippi schools to be hooked up to the satellite network have yet to be selected, Powe added.

"We are primarily working with PREPS to identify specific schools," Powe said. "Some of the Choctaw Indian schools will also be involved."

PREPS, or Program of Research and Evaluation for Public Schools, is a consortium of 28 Mississippi school districts that conduct and share research among themselves. PREPS administrative offices are housed in MSU's College of Education.

In all, students and teachers in 244 Chapter 1 and Indian schools in 16 states will be provided instructional programs through the TI-IN Network. Usually found in rural areas, both categories of schools often lack broad academic offerings found in metropolitan areas.

Most Mississippi public schools are classified Chapter 1.

MSU's Colleges of Education and of Arts and Sciences will develop instructional programs. Bev R. Norment, associate vice president for research, is project director.

In addition to MSU and TI-IN Network, other consortium members are the University of Alabama, California State University at Chico, Western Illinois University, Illinois State Board of Education, North Carolina Department of Public Instruction, Texas Education Agency and Region 20 Education Service Center, also in San Antonio.

Three of four educational consortiums sharing the Department of Education Star Grants are in Mississippi. In addition to MSU, the University of Mississippi and the Mississippi Authority for Educational Television will receive satellite educational program funding.

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PURVIS, MS
LAMAR CO. NEWS
—W 1,300—
HATTIESBURG METROPOLITAN AREA

OCT 13 1988

Satellites to Help Poorest Schools

High-flying satellites will soon mean better learning opportunities for some of the poorest schools in Mississippi and 15 other states as the result of $5.6 million given by the U.S. Department of Education.

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One of the state's best Republican political operatives told me that Lott needs at least a 10 percent lead over Dowdy in the polls. He has been watching Dowdy since he ran for mayor of McComb. Dowdy has a reputation as a fast closer from his race for mayor, his first darkhorse bid for Congress, his reelection campaigns to his late surge past Secretary of State Dick Molpus in the Democratic senatorial primary. A Mason-Dixon poll a week out from the primary showed Dowdy losing to Molpus. Dowdy scored a convincing win.

On the other hand, it can safely be said that Dowdy has never faced as formidable opponent as Trent Lott. Lott is a master political campaigner and may be able to turn back any late move by Dowdy.

Apart from the polls, my own view is that Lott is in a very good position, but by no means can Dowdy be counted out.

PASCAGOULA, MS
MISSISSIPPI PRESS
D. 22,546—S. 24,507
PASCAGOULA METROPOLITAN AREA

JAN 22 1990

TI-IN UNITED STAR NETWORK.

Satellite now part of MSU teaching programs

STARKVILLE, Miss. — January of 1990 will go in the books as the month Mississippi State University inaugurated both state and national satellite teaching programs.

As it happens, the first such course is in engineering, one of two academic leadership fields the institution was given when it was established by the Legislature nearly 112 years ago.

A course in numerical grid generation was broadcast Jan. 16 to students at the Waterways Experiment Station in Vicksburg, and to the Universities of Oklahoma and Texas and Oklahoma State University.

In a cooperative effort with interested Jackson businesses, the Mississippi Cooperative Extension Service office in the capital city is also receiving the broadcast signal.

Early last year, the university purchased a $400,000 portable uplink system to transmit live television programs. As it happened, the transmission equipment arrived just in time to provide live coverage of President George Bush's May 13 commencement address at Scott Field.

Beginning Jan. 23, the first of two education courses were broadcast as part of the university's membership in the TI-IN Star Network of San Antonio, Texas. A course in earth science will emanate from campus Feb. 23 and a course in physics concepts for teachers will hit the airwaves two days later.

In late 1988, MSU received $740,000 as its share of a $5.6 million federal education grant to the nine-member TI-IN Network. The network provides live instruction in the critical subject areas of mathematics, science and foreign languages to more than 240 Chapter 1 and Indian schools in 16 states.

Usually found in rural states, both categories of schools often lack broad academic offerings found in metropolitan areas. Most Mississippi public schools are classified Chapter 1.

David Hutto, director of the MSU Television Center, said faculty members are looking forward to using the new network.

"We're excited about the potential this represents for Mississippi State," Hutto said. "We feel we are on the leading edge of technology as far as having delivery systems that can bring telecourses to people throughout the country.

"This is just the beginning of what Mississippi State can do in this area."

The university's Division of Continuing Education is registering students for all three spring semester courses, as it will for a summer course in mathematics theory.

Jeanette Norment, division program specialist, said Mississippi public school teachers in rural areas who need the education classes to maintain certification will be among those immediately benefiting from the technology.

"Thanks to this program, they can get the required course work without having to travel long distances to do so," she said.

Specific information on the courses can be obtained by telephoning Norment at 1-325-2674.

NORTH CAROLINA DEPT OF PUBLIC INSTRUCTION

WALUNT COVE, NC
STOKES RECORD
—W. 5.600—
GREENSBORO METROPOLITAN AREA

MAY 3 1989

TI-IN
UNITED STAR
NETWORK.

Satellite dish located on the North Stokes campus will provide live instruction through the TI-IN Network in Texas.

N. Stokes Gets Grant For Satellite Program

North Stokes has been chosen as one of eighteen school sites to receive a federal grant designed to provide additional resources to small high schools for satellite delivered instruction and staff development programming. The Distance Learning by Satellite project provides students and teachers with live instruction by means of a satellite dish and programming purchased from TI-IN Network of Texas.

Among the criteria for being chosen for a "Star School" grant includes having a high school student enrollment under 750 students, an administration that is supportive of new technologies that can increase curricular offerings and that is willing to find a "facilitator" for each satellite course that they choose to offer. The school system is also responsible for having a telephone line installed for the "talkback" system.

North Stokes has already received the equipment needed to provide the instruction and a facilitator has been selected. Plans are to have the system in operation by the beginning of the 1989-90 school year.

The Stokes County School System also has a satellite system located at the Central Office in Danbury. This system is among the 146 project sites made possible by the 1987-88 General Assembly's appropriation of $3 million for the Distance Learning by Satellite Project.

TI-IN UNITED STAR NETWORK.

MURPHY, NC
CHEROKEE SCOUT
S.W. 7,000

MAR 14 1989

Students Film Day At Hiwassee Dam

As the tape rolled, so did the actions of students in Sociology class at Hiwassee Dam School. To fulfill requirements of a class assignment the students filmed "Life at Hiwassee Dam", a capsule account of students' life at school as well as a look at their surrounding community.

Students chose scenes they wanted to include in the film and then proceeded to write their own script for their assigned scene.

EAch student was required to write and "star" in one scene. "I was really glad to participate in this video," said Laura Loudermilk, senior. "The project not only united the class out what scene we wanted to be in and then writing our own script made it even more special."

Filmed locations included two scenes at school, shots at Fields of the Wood and overlooking Hiwassee Dam, the Cherokee County Court House, and a scene "cruising" down Peachtree Street in Murphy.

Starring in the film, in addition to Laura Loudermilk, were Megen Channell, Kristy Graham, Becky Harris, Niki Picklesimer and Tammy Reid, sophomores; and James Brown, junior. The directing and filming crew consisted of Susan LaCharite', facilitator, and William Franklin, school media coordinator.

The Sociology class is one of the TI-IN Network satellite classes offered to students this year at Hiwassee Dam and Andrews High Schools. TI-IN is an innovative system designed to provide interactive televised instruction to students.

The Texas-based satellite network provides more than 20 high school courses in partnership with the Texas Education Service Center and the North Carolina Department of Public Instruction. Courses are taught from San Antonio by certified teachers. Students watch class and can ask questions of their teacher using a telephone hook-up as the class is going on.

Courses include a wide range of interests including science, advanced math, foreign languages and the Humanities. This year Hiwassee Dam students are studying French I and Psychology/Sociology. Andrews students are taking Astronomy, Marine Science and Psychology/Sociology.

TI-IN UNITED STAR NETWORK.

HICKORY, NC
RECORD
—D. 27,508—
HICKORY METROPOLITAN AREA

OCT 27 1988

Foreign Language Boosted By Grant

North Carolina's Distance Learning by Satellite network for public schools will be used to train additional second language teachers for the elementary schools, thanks to a grant awarded to the TI-IN Network, which provides programming for North Carolina schools.

TI-IN United Star Network has been awarded at a $5.6 million grant from the U.S. Department of Education to provide exemplary programming resources for its nine associates, including the North Carolina Department of Public Instruction.

The department plans to use a portion of the money to provide training and staff development via the satellite network to increase the number of elementary second language teachers. Second language teachers at the high school level and classroom teachers with a second language background will receive training in teaching second languages to elementary students. Also, elementary classroom teachers will receive some staff development in reinforcing their students' second language studies.

The training package will take about two months and will consist of six three-hour sessions.

Second language instruction is mandated for all students in grades kindergarten through five under the state's Basic Education Program, an education reform package approved by the General Assembly in 1985. Because second language instruction in the early grades is fairly new to the state, some school systems have had a difficult time finding enough second language instructors.

The training provided by this grant will give North Carolina more elementary second language teachers and to help regular classroom teachers make the most of the second language instruction students receive.

For more information, contact Fran Houch, director of the Division of Second Languages, at 919-733-0955.

TI IN NETWORK

TI-IN
UNITED STAR
NETWORK.

Classes in the Country via Satellite

SUMMARY: Schools in rural areas lacking teachers are increasingly enrolling in programs that dispatch courses through satellite dishes. Training teachers to instruct in front of a camera is a big challenge, and their personal contact with students suffers. In addition, some unions are wary of a system that can replace traditional teachers.

When John Miller, the superintendent of schools in rural Hardy County, W.Va., wanted to add new courses in science and foreign languages to the curriculum at Moorefield High School — 540 students in grades seven through 12 — he knew he couldn't hire a new instructor. "It's expensive to bring someone in just to teach a couple classes," he says, "even if you were lucky enough to convince someone to come here to teach them."

Miller thought his school's problems might be solved by hooking up to one of the distance education centers now springing up around the country that send out courses over television to help enrich school offerings in rural areas. But that cost a lot, too — $20,000 at a minimum, just for the hookup — a sum far more than his budget would allow. Then early last summer opportunity arrived in the form of a grant from the West Virginia Department of Education, and Miller took it.

Now, outside the Moorefield High School building stands a satellite dish that picks up programming beamed from the TI-IN (pronounced tie-in) Network, an academic resources organization based in San Antonio, Texas, that dispatches classes to schools in 32 states, mostly in the South and Midwest. Once limited to a single foreign language, French, Miller's high school students now can take Spanish as well. They also can sign up for astronomy.

As recently as five years ago, this kind of distance learning, which brings teachers in live over the TV monitor and allows students to respond with questions over the telephone, did not exist. Now it is a rapidly expanding industry. Fewer than 10 states were using it in 1987, according to a report by the Office of Technology Assessment, while one year later, more than two-thirds of the states "reported involvement." Today, the report says, "virtually all states have an interest or involvement in distance education."

Programming has dramatically increased as well. From the few courses offered five years ago in such basic studies as French and American history, the industry now offers classes as diverse as Japanese — taught by a native speaker — marine biology and art history, as well as Scholastic Aptitude Test preparation. There are also special enrichment classes — an hour spent with a famous artist or writer, for example — and courses for teachers, too, to help them keep up with what is happening in education.

Distance educators shoot the class in a studio, beaming the program up to a satellite that transmits it to the dishes that carry it into the classroom. A single class — one in German, for example — is taken by students in several states at the same time. Each has an adult — usually called a proctor or facilitator — to help maintain order.

Each class, too, comes equipped with telephones that students can pick up when they want to ask questions of the teacher. Because all phones are hooked into the same system and are connected with the studio where the class is being conducted, all students taking the class hear the questions and the teacher's responses.

A facsimile machine in each classroom allows teachers to make homework assignments and send handouts. TI-IN puts a cap of 200 on the number of students taking a course at one time, though not all classes reach the limit. Other suppliers set other caps, sometimes up to 1,000 per class, says Bruce O. Barker, an associate professor of education at Brigham Young University, Hawaii Campus, and an observer of distance education since its inception.

Training teachers can be a problem. "The biggest shock is the camera lens," says Lloyd Otterman, TI-IN's executive director, "and the absence of the students." The network hires only teachers who have had classroom experience and majored in the field they are going to teach. And, he says, they "must be people comfortable in the medium."

Prospects get 30 days' training with television professionals, a period sufficient to make them "presentable," says Otterman. "Real facility on television takes longer," he notes, and is developed in a day-to-day relationship with the producer.

TI-IN is the only private supplier of the television classes, but several states have begun getting into the act. Florida, Kentucky, Oregon and Virginia, for example, have established or are in the process of establishing independent satellite networks that will allow their departments of education to tailor programming to the state's needs.

A number of universities such as Oklahoma State and Washington State, long-

TI-IN NETWORK

Students receiving instruction from TI-IN can ask questions by phone.

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AL RENDON FOR INSIGHT

Jo Ellen Leinbach teaches astronomy.

time providers of kindergarten-through-12th-grade education resources in one form or another, have their own satellite systems. The University of Maine at Augusta opted for a fiber-optic system that does not even need a satellite. And Congress in 1988 created the Star Schools program, which provides grants to organizations such as TI-IN to supply programming to remote regions.

Observers like Barker say that many producers turn out good products but caution that distance education "is no panacea." Remember, he says, "the teacher cannot see the students. In effect, he's blind, staring at the camera lens."

As a result, Barker maintains, "nuances of teaching are lost." Such things as eye contact in which the teacher sees "whether the student understands the material" cannot take place. And, he says, the large classes mean that "real interaction can't take place between students and teachers," despite the telephones, since 200 students can't all call in to ask questions. The dilemma is compounded, he thinks, when the subject is a foreign language, where student-teacher interaction is essential.

But perhaps more important, the blind teacher makes it possible for "students to hide," Barker says, and this they will, despite the presence of a supervisor. "You have kids accustomed to changing the channel or turning the TV off when they are bored with it at home," he says. "In the classroom, they just tune it out, simply stop paying attention." Barker thinks distance educators could use "fewer talking heads and more visuals." Imagine, he says, listening to a commentator talk about the recent San Francisco earthquake without any footage of the event being shown. "That's what can happen too often" with distance education.

To that, Otterman replies, "television is a tool like any other. A teacher who learns to use it well can personalize the experience," making it similar to real classroom learning. Is a bad live teacher, he asks, preferable to "one that's good on television"? Adds Pamela MacBrayne, director of the distance education project at the University of Maine at Augusta, "What we've found is that students adjust to the situation, especially when the teacher's on top of the medium."

The TI-IN Network has experienced the rapid growth characteristic of distance education, starting from a few local sites near its San Antonio headquarters five years ago and expanding to schools in nine states two years later and to more than 900 locations today. But that is just a drop in the rural bucket, according to the Office of Technology Assessment. Fewer than 10 percent of the schools that might profit from distance education have access to the kind of equipment necessary to receive classroom transmissions, its report says, and most of the 90 percent without it are unlikely to have the resources to get it.

Distance educators also must contend with cautionary warnings from teac[h] unions, which say they welcome new t[…] that enhance education but do not like [...] tems that can be used to replace teach[…] A statement issued by the National Edu[…]tion Association's educational technol[ogy] committee, for example, notes the poten[tial] of distance education to substitute the [...] old teacher-student relationship with a r[ela]tionship between students and a "teache[r in] an electronic box," which the commi[ttee] sees as a definite step backward for Am[er]ican education.

Still, Otterman may have someth[ing] when he says television education can [be] humanized. TI-IN boasts of examples [of] students miles apart who meet through [tak]ing the same class and wind up going [to] each other's senior proms.

The company also has started a mon[thly] student council of the air and has a pop[ular] video contest in which its students comp[ete] with 90-second videotapes picturing t[heir] schools. "There are ways to enhance [the] experience," says MacBrayne. "It is [not] simply plugging students into a mach[ine,] causing them to lose other facets of [the] [educational] experience."

But there are frustrations, too. On [top] of the initial costs, Miller says, he ha[d to] come up with about $240 for each of [the] 16 students taking the Spanish course [and] the 12 enrolled in astronomy.

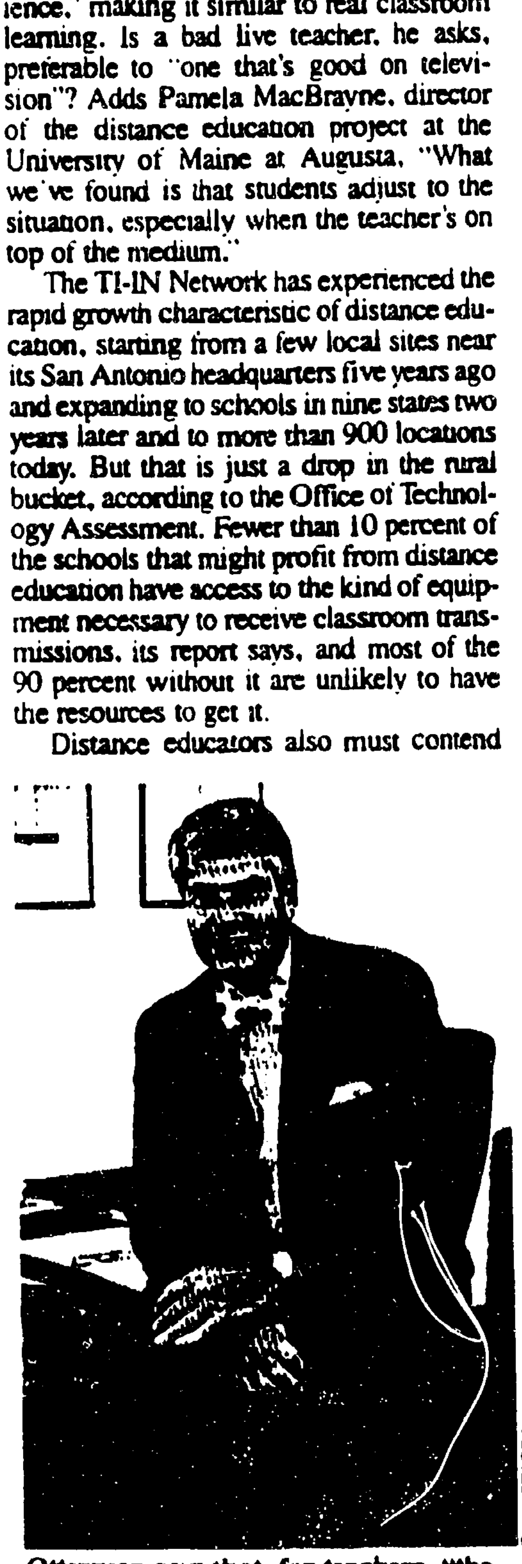
In addition, he says, the contractor [who] traveled more than 200 miles to Moore[…] to install the equipment forgot parts on [two] occasions and had to return home to [re]trieve them. As a result, the Moore[…] students got started about two weeks l[ate,] a problem compounded when dupli[cate] tapes of missed classes, supplied by TI[-IN,] needed to be redone.

"All things easily explained by a b[usi]ness so new," he says. The big prob[lem] now, he adds, is a tree discovered to b[lock] reception of TI-IN offerings beamed f[rom] places other than the company's h[ome] base.

Barker says he has encountered [...] school officials who do not like to giv[e up] control over what is being taught in t[heir] schools, which happens when they [turn] over classrooms to distance education [sup]pliers. "A principal can't confront [the dis]tance educator] like he can a real teach[er in] a real classroom," Barker notes.

But Miller thinks the loss of contro[l] and the expense — may be worth it. "[...] it does allow is expansion of the cur[ricu]lum," he notes. "And that's exactly wha[t we] aimed to do."

— Stephen G[…]



TI-IN NETWORK

Otterman says that, for teachers, "the camera lens is the biggest shock."

TECHNOLOGY

TV Teachers Go The Distance

Network brings high school courses down to earth

From behind a desk in his San Antonio "classroom," David Marshall coaxes the handful of students in his summer school physical science class through the intricacies of chemical bonding. After a brief demonstration of the mathematics involved, he poses a theoretical problem on the bonding of fluorine and oxygen atoms and awaits a response.

A few moments later, a hesitant student responds with the right answer, provoking an outburst of praise from his teacher.

"Great. Now, you're thinking," Marshall exhorts. "Lots of students get bogged down in this section, but you guys are sailing through this. You guys are really concentrating."

Marshall is talking to a television camera. In an adjacent control room, a technician follows the teacher's every move on a bank of television screens, ensuring that his audiences benefit from exactly the right camera angle.

"Dave is really a good motivator," the technician notes, switching from a full-frame shot of the equation to a close-up of Marshall.

Marshall, 37, is one of the newest of the roughly 15 on-air teachers who produce educational programming for the TI-IN Network, Inc., the nation's only for-profit distributor of satellite-delivered educational programming. And the walls of his "classroom" stretch from the studio in Region 20 Education Service Center, operated by the Texas Education Agency, to states as distant as Minnesota and Mississippi.

Marshall's science lessons are among more than 25 high school courses, in subjects ranging from Spanish to marine biology, that TI-IN beams from several other studios in Region 20 via the Spacenet II satellite to receiving dishes located in small, rural school districts nationwide. In fact, TI-IN now dispatches more than 5,000 hours of live, interactive high school, in-service, and "enrichment" programming annually to more than 900 "downlinks," or earth stations, in more than 30 states. And, bolstered in part by a two-year, $9.7 million federal grant, it continues to attract new customers.

The key difference between TI-IN's programming and traditional televised instruction, say company officials, is that its students can respond "live" to the teacher in Texas over a toll-free telephone line from almost anywhere in the country. Satellite teachers can also dispatch homework assignments over the network to facsimile machines supplied by TI-IN.

> **'The first couple of times you have to force yourself to talk to the camera lens. But after a while that comes to you.'**

Marshall, who left San Antonio's Northside Independent School District last summer to work as an on-the-air teacher for TI-IN, is one of a select group of educators who every year successfully pass the unusual screening process TI-IN imposes on its applicants.

"There's a lot of response to ads we run [in national publications], but you need an awful lot of applicants for one position to get the right person," says Lloyd Otterman, chairman and chief executive officer of the five-year-old network. That's because the interactive and highly technical medium requires a unique combination of factors that few teachers—even successful veterans of the conventional classroom—possess.

To be considered for the job, applicants must be "very well-versed in their subject matter" and have considerable classroom experience, Otterman says.

Marshall, for example, first applied to TI-IN seeking an alternative to the summer school courses he taught for many years at Northside. He taught 13 years—or "13,000 hours" as he jokingly puts it—in high schools, middle schools, and alternative schools across the city.

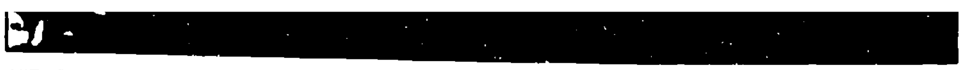
His experience, however, is not unusual among successful applicants, according to Edward Vara, Region 20's instructional coordinator—a position roughly equivalent to a high school principal.

The amount of experience among TI-IN's present crop of instructors, he says, ranges from three to 20 years. Many, he adds, hold master's degrees, and some have earned doctorates. But the medium of satellite education requires more than just intellectual prowess.

Although a typical classroom teacher may have mastered the use of an overhead projector and perhaps a microcomputer, TI-IN's approach to teaching requires that teachers be fluent in the simultaneous use of several different electronic learning aids, from television cameras to videodiscs.

Most importantly, according to network executives, successful teachers

tion, would-be video teachers are asked to teach while manipulating a dizzying array of overhead cameras, videotape machines, and other electronic enhancements.



"Teleteacher" Marshall: The walls of his "classroom" stretch from a San Antonio studio to states as far as Minnesota and Mississippi.

"It's a unique kind of environment," Otterman concedes. "You have to have a good, solid academic background in your field, but you really have to be facile in the use of technology."

Marshall, who successfully passed his first screen test, agrees that the medium forces teachers to adapt. "The first couple of times you have to force yourself to talk to the camera lens—where in a regular classroom you have 30 people giving you feedback," he explains. But, he adds, "after a while that comes to you."

"Once you get the idea that somebody really is there and they're watching you, that experience goes away," he says.

Yet, Otterman stresses, not everyone who submits to the test is as confident as Marshall. And he expresses concern that the lack of qualified teachers is a definite limit on the growth of the medium. "Recruiting is very tough," Otterman says. "There really isn't any teacher-training institute that is preparing people for this kind of a role."

And, for all the emphasis placed on the academic credentials of its instructors, TI-IN officials admit the screen test generally is a determining factor in hiring. "It's not a beauty contest," notes Sheila Nicholls, director of telecommunications for Region 20. "But on-air image is important. We feel it is important enough to pay attention to."

Vara, who is responsible for hiring, says he does not view an audition tape with any specific criteria in mind. "I look for raw material," he explains. "I know instruction is important, but the first thing that kids relate to is the image on that screen."

He also looks for a willingness to try a new, and often alien, method of teaching. "I ask myself, 'How teachable is this person?' " he says. "Nobody comes in here knowing exactly how to do this."

That challenge was a major factor behind David Marshall's decision to try his hand at "teleteaching." After 13 years, "I was pretty well ready for

enced teachers are required to teach no more than two courses a day. Because courses are capped at 200 students, the paperwork load could otherwise be overwhelming.

Teachers also are required to spend part of their day in "office hours" should students call in with questions on a special toll-free line. They typically earn an average annual salary of $25,000, Otterman says.

Marshall says he generally has enjoyed his first semester on the air, although he misses the physical interaction with his students. TI-IN officials agree that placing a camera in each classroom to allow the teachers to see their students—and the students to see each other—would make the system more interactive and make it easier for teachers to pick up on nonverbal clues from students who may be having learning difficulties.

But they point out that the cost of installing a satellite "uplink," or ground station, at every school would be prohibitive from both technological and regulatory standpoints.

One element of TI-IN's approach that Marshall particularly appreciates is the policy of requiring an adult "facilitator" at every school to enforce

discipline, handle classroom minutiae, and act as the "eyes and ears" of the TI-IN teacher.

The facilitators "free you up a little more so that you actually do the teaching part of it," Marshall says. "They've been real good. They're helping the kids because they see them on a day-to-day basis."

Marshall also is pleased that he has been allowed to experiment with a videodisc curriculum developed by the Texas School Boards Association; he is one of only a handful of instructors in the nation to employ the sophisticated device.

Developed by the research arm of the association, the series of disc and computer programs contains simulations of chemical reactions, laboratory exercises, and "real life" applications of physical sciences. A lesson in the physics of motion, for example, was filmed on the various rides and attractions at a Texas amusement park.

The disc technology, similar to the videodiscs used to record movies, allows teachers and students to freeze frames and skip at random from lesson to lesson. And the ability to retrieve information almost instantaneously from anywhere on the disc makes it easy to tailor individual lessons in any sequence.

Although it can be configured into a series of workstations for small group instruction, the version that Marshall uses is similar to a conventional blackboard in which lessons are demonstrated by the teacher to the students.

"That's really a jewel," he says. "It adds so much more to your instruction."

Marshall is unsure whether he will remain with TI-IN for the balance of his career. He notes, however, that interest among colleagues and friends in the relatively new medium have lent his work a new cachet.

"A lot of people have a fairly good insight from their perspective, I guess, on what the teacher does in the classroom," he says. "But, just because you teach on television, that adds a little splash to it." □

—Peter West, *Education Week*

MULTICHANNEL NEWS
NEW YORK NY

TECHNOLOGY

Report Takes Comprehensive Look at Interactive TV

By LAURENCE SWASEY

NEW YORK — Boston public broadcaster WGBH-TV has submitted a report on interactive television to the Corporation for Public Broadcasting, which is considering funding interactive educational programs. The report is believed to be the first comprehensive look at the new technology.

Diana Gagnon, director of new business development for ACTV Inc., which is planning to launch on U.S. cable later this year, also submitted a report to the CPB which provided much of the material for the WGBH study. Her report will be published and available to the public soon.

WGBH previously has produced an interective pilot program (see *Multichannel News* Feb. 13, page 32).

The WGBH Educationel Foundation report, *IaTV: The Potential for Children's Programming*, attempts to identify "underlying features and factors that will influence the content and form of IaTV."

The WGBH report cites the recently syndicated *Captain Power & the Soldiers of Fortune* as one of the earliest examples of "en interactive broadcast series" and states that although "the program sparked criticism — it was violent, toy-based, and play-along required a relatively expensive toy — it also sparked new interest in a very different kind of television, one that provides opportunities for viewers to interact with what they are seeing."

The report describes two phases of research. The first was designed to "determine the possibilities presented by various IaTV technologies," and the second to "explore how IaTV may benefit children's programming."

WGBH cites Gagnon's research for ACTV as providing "the information we needed in order to undertake the second phase of our research."

The report said that although WGBH would like to state the ramifications interactive TV could have on children's programs, it is now too early to do so because "IaTV is still in a formetive stage — (whose) range of options and configurations is vast and largely untested."

According to the report, "No true IaTV industry now exists and there are no clear winners or losers yet among the myriad of existing or planned IaTV technologies."

The report calls cable one of the leading edges of interactive TV and lists ACTV as one of the leaders in producing interactive programming for cable. "ACTV and the Muppets producers (Jim Henson) have already developed severel pilots. These programs are capeble of asking children specific questions, giving them feedback on their responses, and providing follow-up remediation. Although not yet as versatile as a multipurpose interactive videodisc system, the ACTV technology far exceeds the current capabilities of all other interactive cable systems."

The report says that certain IeTV technolgies and compenies interest WGBH the most for "future investigation." These ere:

• Simulcast systems. The Interactive Game Network, based in Menlo Perk, CA, is, according to the report, "well-funded end has gained the necessary FCC clearances to enable (it) to proceed into the marketplace. Company representatives have alreedy approached PBS children's progremming producers, including CTW (the Children's Television Workshop, which produces *Sesame Street* end other programming) and WGBH to discuss co-productions end demonstration pilots. An interective version of a CTW program wes showcased by the Interactive Network et the 1988 PBS board meeting in San Diego."

• Encoded light and audio systems. "The Veil technology developed by the Interactive Systems Project, (located in Beaverton, OR), can take many forms including e tool game for game playing or a computer that includes an optional printer. It can also be used to make toy bears talk and move in response to to the TV signals, or to teach music by loading data into synthesizers for voicings and sequences. It is also possible thet larger computer files could be downloaded directly into a microcomputer using Veil technology. If so, powerful interactivity that resembles interactive videodiscs could be developed for both homes and schools. Veil technology is now genereting income and the firm is actively seeking partnerships with broadcasters, including WGBH."

The report also details the role TV-and-telephone systems might play in the future. "With multiple telephone capabilities and years of experience from pledge breaks and auctions, every public television station in the country is equipped for this form of IaTV. We believe 800- and 900-number phone lines can be utilized in important and creative ways during drames, geme shows, and other types of television programming," the report says.

Interactive broadcast and satellites will play a leading role in classroom teleconferencing, the report states. "The TI IN Star Network is an important delivery vehicle for instructional television. It is conceiveble that any station with an uplink to the GTE Spacenet II satellite could serve es a headend for the clessroom teleconferences. Innovative IaTV programming must be created for this project."

The report goes on to state that appropriate use of interactive technology "meens metching the most fitting technology to a specific task by considering educational or entertainment objectives and how best to achieve them."

It also identifies three levels of interectivity: play-along, which lets the viewer play elong, but not alter what is on the screen; guided IaTV, in which viewers mey alter what they see by making choices from menus at pre-selected intervels and: participatory IaTV, which allows viewers to participate in e dialogue with program producers and presenters and to directly influence both the form end the content of what is seen on live programs.

The report says interactive TV will change viewing habits. It cites a recent study which reported that if interactive TV follows current trends in television and other interactive media, then programs may become "overly dependent on short information bits that foster brief spurts of viewer attention." The WGBH report attributes this change to interective TV requiring active involvement rether than the passive viewing associeted with today's programming.

The report also states that consultants feel interective TV may affect how long end often children will choose to watch TV because of the attention end concentration demanded by this new technology. But the report said it could not determine whether children's usual sitting time of a half-hour will decrease or increase because of interactive TV.

The report says the new technology mey influence whether a viewer feels like an isoleted consumer or part of a larger community of viewers. It notes that previous research found interactive TV can meke the viewing experience "a collaborative environment, with kids crowding around the screen sharing informetion and meking decisions together."

The introduction of interactive television may also create two classes of viewers — the haves and have-nots — because some may not be able to afford the hardwere needed or the costs of celling 900 numbers required to participate in interactive progremming.

WGBH summed up its report by detailing its own plans for interactive TV which include seeking partnerships with vendors end to produce pilots and series that will serve as tests for differing interactive technologies. ■

IaTV is still in a formative stage — (whose) range of options and configurations is vast and largely untested.

EDUCATION WEEK

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Senators Call For Reduced Control Over Indian Aid

Tribes Should Allocate U.S. Funds, Panel Says

By Peter West

WASHINGTON—In a blueprint for what it calls a "New Federalism for American Indians," a Senate panel has proposed the gradual reduction of federal oversight for Indian programs and the rechanneling of billions of dollars in aid directly to tribal governments.

The tribes, which would negotiate formal agreements with the United States, would then be free to allocate the money any way they wished—for increased education, health care, and other social services, or for any efforts to regenerate the faltering Native American economy.

"Paternalistic federal control over American Indians has created a federal bureaucracy ensnarled in red tape and riddled with fraud, mismanagement, and waste," the bipartisan Special Committee on Investigations charged in a report issued Nov. 17.

The 238-page document reflects testimony given during a series of Congressional hearings and fact-finding trips that were part of a two-year probe. It chronicles a widespread pattern of political corruption and mismanagement on reservations that has included rampant, unreported child abuse at federally run Indian schools.

The report was released here at a press conference held by Senators Dennis DeConcini and John McCain, both of Arizona, and Senator Thomas A. Daschle of South Dakota.

The lawmakers blamed both the "benign neglect" of the Congress and denial of problems by federal agencies—particularly the Interior Department's Bureau of Indian Affairs—for the current state of unmet government responsibility.

"In every area it touches," the report says, "the B.I.A. is plagued by mismanagement." This is so, it adds, despite many dedicated B.I.A. employees.

"The inability of so many good people to make a real impact," the document con-

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Schools' Interest in Learning by Satellite Surges

Seen as Vital Adjunct to Classroom Teaching

By Peter West

Students can use toll-free phone lines to talk to their TI-IN instructor or to their classmates across the country.

SAN ANTONIO—Three maps lining the walls of a small television control room here chart the rise of an educational phenomenon—an experimental state resource that grew into a national network for long-distance learning.

Patsy S. Tinsley, co-founder of what is now TI-IN Network Inc., the country's only for-profit purveyor of educational programming by satellite, admits that the venture "grew much faster than we ever dreamed it would."

The first of the maps, an outline of the state of Texas, proves her point. It shows the modest state of play in 1984, the year Ms. Tinsley and her partner borrowed $12 million to launch the Texas Interactive Instructional Network. Its mission was to beam courses developed by the Texas Education Agency into small, rural school districts unable to employ teachers in those subject areas.

Two years later, the company's name had been changed and its reach

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Alaska Governor's New Campaign: Endowment for His State's Schools

By Mark Walsh

Even though he is not running for reelection, Gov. Steve Cowper of Alaska is campaigning as hard as any candidate these days.

But instead of pursuing a second four-year term at the helm of the Last Frontier, Mr. Cowper is crusading for the creation of an educational endowment that, he argues, would provide a stable supply of money for Alaska's schools in the next century.

The oil royalties that currently provide most of the state government's revenues are already declining and cannot be counted on in the decades to come, he warns.

Mr. Cowper's solution is to set aside some of the earnings of the Alaska Permanent Fund—the massive account, currently worth $10.2 billion, that was established in 1976 with the state's first revenues from the the Prudhoe Bay oilfields—for a new Education Fund.

By the year 2000, he estimates, the Education Fund would be large enough to become a self-sustaining source of money for schools.

The 51-year-old Democrat's proposal has faced significant opposition in the state, however, from those who warn it could endanger the hefty earnings checks

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Researchers Propose National Curriculum To Ease Barriers Faced by Migrant Students

By Peter Schmidt

Policymakers should consider such measures as a national curriculum and high-school diploma for migrant students to help ease the unusual barriers to schooling such children face, a team of scholars recommends in a new report.

Financed by the U.S. Education Department, the report is based on a three-year ethnographic study of the children of migrant farm workers in nine states.

Drawing on thousands of hours of interviews with migrant families, the authors describe the existence of a "culture of migrancy" that "fosters its own continuance and is, in many ways, counterproductive to education."

"All migrant children are potential dropouts," the report concludes. "If children are needed in the fields for the family to survive, then that will take precedence over education or any other need the migrant child may have."

It notes that many migrant children drop out because they are enticed by the financial rewards of field work and discouraged by academic failure at school.

Among its other recommendations, the

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Board Reaffirms Plans To Reform Administration

By Ann Bradley

WASHINGTON—While acknowledging that some of its more controversial proposals may be modified, the National Policy Board for Educational Administration formally recommitted itself last week to the task of improving the preparation of school administrators.

The policy board encountered sharp criticism last spring when it released a report calling for an overhaul of how school administrators are recruited, trained, and certified.

At a meeting here last week, the policy board decided to incorporate as an independent organization under the leadership of Scott D. Thomson, the outgoing executive director of the National Association of Secondary School Principals. Mr. Thomson will assume his new duties March 1.

He replaces David L. Clark, a professor of education at the University of Virginia, who resigned last week as the board's executive secretary, effective Dec. 31.

"I am optimistic that we're on track and we will be a major player in the field of school administration and school leadership," Mr. Thomson said.

The policy board, which was formed in January 1988, is made up of representatives of 10 major national education associations. Its initial report, "Improving the Preparation of School Administrators: An

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Also in the news

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distance learning, he maintains, was its provision of "proof in the education context."

TI-IN's executives tend to downplay the technical aspects and concentrate on the substance of their offerings. These include more than 25 high-school courses, in subjects ranging from French to marine biology.

Network officials argue that, because of television's ability to enhance experiments—to freeze frames during a physics lesson on waves, for example—some students may actually benefit more from their televised courses than from the traditional classroom presentation.

"There are certain points that our medium really intensifies," Dixie Boyd, TI-IN's vice president of programming claims.

Others point out that the network's services are able to meet the needs of first-year and experienced teachers hungry for greater training opportunities. TI-IN beams more than 400 hours of inservice programming to districts every year.

Enrichment programming, such as interviews with famous artists and authors and special presentations on dance and other fine arts, can amount to the electronic equivalent of field trips, they add.

"A lot of our enrichment programs go beyond what even a large district could offer," says Ms. Boyd.

She and others argue, in addition, that TI-IN can offer students in small, isolated schools an invaluable element of social interaction.

Though it is possible for classes in

> *"We've had students [who met over the network] go to each other's proms this year."*
>
> —Sandra Gudat

various parts of the country to relate to one another over the television screen as well as the telephone lines, installing satellite "uplinks," or broadcasting facilities, at schools is usually cost-prohibitive. Instructors aid the interaction with others in the network, however, by displaying photographs and other mementoes of classes elsewhere taking part in discussions.

"We've had students [who met over the network] go to each other's proms this year," says Sandra Gudat, who until recently acted as TI-IN's public-relations representative.

Until recently, however, few researchers had studied the educational effectiveness of distance-learning programming.

"[The technology] works and they've packaged it well," Mr. Benson says of TI-IN. "But that says nothing about the content."

'Quality Learning Experience'?

The dearth of research on effectiveness is a function of the relative newness of the satellite-education industry, according to Bruce O. Barker, now an associate professor of education at Brigham Young University at Hawaii.

Writing last year in the journal *Research in Rural Education*, Mr. Barker said that "the novelty of course delivery via satellite has grown so rapidly in the last three years that few questions relative to program quality have been asked."

For a more recent study—one of the few published to date that assess TI-IN's operations—Mr. Barker critiqued the teaching styles of three TI-IN instructors during a five-day period in February and March of this year.

He says he set out to determine if TI-IN—a "prototype," in his view, for similar services—was offering students a "quality learning experience."

He concluded that "quality instruction can and does occur" over the TI-IN Network.

"The important thing," he wrote, "is that the instruction was indeed interactive—students and teachers were in fact talking back and forth to each other via the medium. In essence, the major aspects of a traditional classroom were being employed, albeit via long distance."

Mr. Barker, who was employed by Texas Tech University when he completed the TI-IN study, also said that teachers on the network "appeared to have a good rapport with their students" and that each of the three studied "displayed a genuine interest in their students' affairs."

But he found some disadvantages inherent in the medium.

"The teacher is not able to see the students," he wrote. "This severely limits teacher sensitivity to nonverbal clues to behavior."

As a result, he said, the medium "makes it easy for students to hide from the teacher."

Other educators, particularly those in the foreign languages, where direct interaction is often a vital instructional component, echo this assessment.

Whatever its potential drawbacks, however, TI-IN is filling a need, its customers argue, that some similar operations may not.

Statewide Networks

North Carolina's experience as the so-called "first TI-IN state" bears testimony to this fact, officials there say.

Elsie L. Brumback, director of media and technology for the North Carolina Department of Education, explains that TI-IN's services are part of a statewide effort to help districts meet increased academic standards.

The legislature set aside $3 million in 1987 for establishing a distance-learning capability to aid schools in poorer or isolated areas, she says. Officials signed a three-year contract with TI-IN in January of 1988.

Although evaluators from the education department investigated other sources, Ms. Brumback reports, "TI-IN's programming met more of our requirements—including a cap on number of students enrolled" in a course.

The courses offered by TI-IN cost between $400 and $500 per student.

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New Medium Requires 'Camera Presence'

By Peter West

SAN ANTONIO—From behind a desk, David Marshall coaxes the students in his science class through the intricacies of chemical bonding.

After demonstrating the mathematics needed for a correct answer, he poses a problem about the bonding of fluorine and oxygen atoms. Then he awaits a response.

A hesitant student finally offers the right answer, provoking a torrent of praise.

"Great. Now you're thinking," Mr. Marshall says into a television camera. "Lots of students get bogged down in this section, but you guys are sailing through. You're really concentrating."

In an adjacent control room, a technician follows Mr. Marshall's every move on a bank of television screens, ensuring that his audience benefits from exactly the right camera angle.

"Dave is really a good motivator," the technician says, switching from a full-frame shot of the equation to a close-up of David Marshall's face.

The 37-year-old teacher is one of the newest of a cadre of on-air instructors who work for TI-IN Network Inc., the nation's only for-profit distributor of satellite-delivered instructional programming.

And his classroom encompasses not only a studio in the Region 20 Education Service Center here, but also high schools from Minnesota to New Mexico.

Charismatic 'Live Wires'

Mr. Marshall, who left San Antonio's Northside Independent School District this fall to work for TI-IN, is one of the handful of teachers each year who successfully pass the network's unusual screening process.

"There's a lot of response to the ads we run, but the fact is, you need an awful lot of applicants to get the right person," says Lloyd O. Otterman, the network's chairman and chief executive officer.

That is so, he and others at TI-IN [say], because teaching on television requires a combination of attributes few classroom teachers—even successful veterans—possess.

Even to be considered, applicants must be "very well-versed in their subject matter" and have years of experience, Mr. Otterman notes.

David Marshall, for example, was a 13-year veteran who had taught in high schools, middle schools, and alternative schools throughout the city. He was seeking when he applied to TI-IN an alternative to the summer-school courses he had taught for years to supplement his income.

That kind of experience is not unusual, according to Edward Vara, Region 20's instructional coordinator. TI-IN does not employ teachers fresh out of college, he says, because "you need to know the classic kinds of things that go on in schools in order to be able to do this job."

The range of experience among TI-IN's present crop of about 15 on-screen instructors is from 3 to 20 years. Many, Mr. Vara says, hold master's degrees, and some have earned doctorates.

But the medium requires a dimension beyond the intellectual, according to network executives. Successful teachers must project an image that will capture and hold the eye of a distant, sometimes unreceptive, audience.

"You really need to have camera presence," Mr. Otterman explains. "You just can't be a dead-head. You have to be a charismatic live wire."

Screen Tests

Telegenic qualities are put to the test in a 10-foot-square broadcasting booth in the Region 20 studios, where TI-IN subjects all of its applicants to what amounts to an elaborate screen test.

Seated at a specially designed workstation, would-be employees are asked to teach while manipulating overhead cameras, videotape machines, and other equipment.

"It's a unique kind of environment," says Mr. Otterman. "You [have to] be facile in the use of technology."

Mr. Marshall, who passed his first screen test, has learned that the medium imposes its own special framework on teaching.

"The first couple of times, you have to force yourself to talk to the camera lens," he reports. "In a regular classroom, you have 30 people giving you feedback." The awkward sense of talking to a void, he says, "goes away, once you get the idea that somebody really is there and they're watching you."

Many, however, are not as confident or adept as Mr. Marshall. A lack of qualified teachers, the TI-IN chairman complains, is limiting his network's plans for expansion.

"Recruiting is very tough," says Mr. Otterman. "There really isn't any teacher-training institution preparing people for this kind of role."

Not a 'Beauty Contest'

Despite the emphasis placed on academic credentials, TI-IN officials admit that the screen test generally is the determining factor in hiring.

"It's not a beauty contest," says Sheila Nicholls, director of telecommunications for Region 20, "but on-air image is important. Important enough, we feel, to pay attention to."

Mr. Vara, who is responsible for hiring, says he does not view an audition tape with any specific criteria in mind.

"I look for raw material," he explains. "I know instruction is important, but the first thing kids relate to is the face on that screen."

He looks also for a willingness to experiment.

"I ask myself, 'How teachable is this person?'" he says. "Nobody comes in here knowing exactly how to do this."

Tough Working Conditions

To Mr. Marshall, the medium's challenge was a key factor in his decision to try "teleteaching."

After 13 years in a regular classroom, he says, "I was pretty well [ready for something a little different. I thought I] should try this for a little while.'"

A technician works behind the scenes, following a teacher's moves to capture just the right camera angles for a TI-IN Network production.

After a successful summer-school season with the network, he signed on as a TI-IN teacher for the regular school year.

Now, in addition to teaching a conventional classroom in the mornings for Region 20, he teaches one physical-science course in the afternoons to between 50 and 60 students in small schools in Illinois, Minnesota, Mississippi, New Mexico, and Texas.

He considers the courseload "fairly manageable."

TI-IN teachers are allowed to teach no more than two courses a day. One reason, officials say, is that even though the courses are capped at 200 students, the size of the televised classes produces a heavy load of homework to grade.

And because teachers also are required to spend part of their day in "office hours," available for students calling in with questions on a special toll-free telephone line, the workload from more than two courses would be overwhelming.

A third factor, according to Ms. Nicholls, is the "energy depletion of being on the air."

For their efforts, teachers typically earn an average annual salary that is comparable to the national average of approximately $25,000 a year.

[Mr. Marshall] is generally enjoying his first semester on the air, though he misses the personal interaction with students.

A Different Medium

"It's definitely different from the standpoint that you don't have kids in front of you, so you really don't know if they're confused or following along."

But, he concedes, "it takes a while to build up that rapport," even in a regular classroom.

One element he particularly enjoys is having an adult "facilitator" at every school to enforce discipline and cope with classroom minutiae.

"It frees you up a little more, so you can actually do the teaching part of it," he says. "They've been real good at helping the kids, because they see them on a day-to-day basis."

He also is pleased he has been allowed to experiment, using, for example, a videodisk curriculum on air.

Although unsure about whether he will remain with TI-IN for the balance of his career, he admits that interest in the medium among his friends and colleagues has lent his work a certain cachet.

"A lot of people have a fairly good insight from their perspective on what the teacher does in the classroom," he says. "But, just if you teach on television, that adds a little

Strategies for Implementing Distance Learning Technologies: Why, When, and How

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By Dr. Pamela S. Pease

In the 1980s, the marriage of computer, satellite, and telephone technologies has spurred the growth of instructional programming transmitted via these technologies. The decision to implement instructional programming involves factors that include: (a) the availability of technology, (b) the type and amount of program offerings, and (c) the reliability and viability of distance learning systems, of which there are many.

An administrator's decision to implement this type of instructional offering may be based on the need for additional resources as he or she is confronted with the reality of a teacher shortage in the critical subjects, coupled with a finite level of funding to implement school curriculum. In addition, some administrators recognize the dual effects of implementing a successful innovation — namely, the prestige associated with introducing a new program that enhances existing academic offerings.

Defining Distance Learning Systems (DLS)

Broadly defined, distance learning systems (DLS) are networks that employ video, computer, and/or audio to transmit interactive instruction from one central location to multiple geographically separate ones. A DLS offers either local, regional, or national service or a combination thereof. Satellite- and telephone-based transmissions are the most widely used modes for national networks. The attribute of interac-

piggy-back on larger technology transfer grants, as has been the case in the U.S. Education Department's Star Schools Program.

Identify and Compare DLS.
The selection of the hardware and programming should be based on the ability of a DLS network to meet the needs of your school district's instructional and financial needs. TI-IN Network and Oklahoma State University are two of several providers that offer national and regionally based instruction. By narrowing your selection to one or two providers, this will allow you to more closely examine three criteria:

1. Experience in Distance Learning
   — Length of time in business
   — Staff qualifications
   — Number of courses delivered
   — Method of equipping/installing hardware
   — Number of subscribing schools
2. Reputation as a Provider
3. Cost of Service

Experience in Distance Learning.
Do not underestimate the importance of experience when evaluating a potential DLS provider. Since DLS is an extremely capital-intensive business, the length of time, number of services/programming offered, and number of subscribers must be weighed in your evaluation of the provider's financial viability in the marketplace. Considering that the start-up cost to your district will be quite high, it is important that you select a DLS provider that is both reliable and viable. The worst that could happen to your implementation is changing providers in midstream because they went out of business.

Matching your instructional needs with the programs offered by DLS is important. Review both the range of programs as well as the frequency with which these programs are offered. Keep in mind that with national DLS providers the time zones must be considered when determining courses available to you. As a purchaser of a DLS service, request to preview a sample of the instructional offerings. Evaluate these offerings based on the following attributes:

1. Level of Interaction Desired
2. Effectiveness of Technology Employed
   — Mode used for interaction (i.e., audio)
   — Mode used for transmission
   — Ease-of-use of the technology
3. Quality of the Instructors
   — Production values
   — Effectiveness as instructors
   — Credentials (i.e., meet state certification requirements)
4. Level of Support Provided by DLS Provider to Your School
   — Mailing handouts and assignments
   — Training users
   — Responding to questions and concerns

Another factor in considering a DLS provider is the method employed for equipping a school with the necessary hardware. The majority of DLS providers supply equipment. However, not all install the equipment. The TI-IN Network is the exception because it both installs and maintains the equipment at every school site. How important a "turn-key" service is to your district is a decision you must consider.

Reputation as a Provider.
As is the case for any major service that you purchase, request a list of subscribers that the DLS provider uses as references. Ask a few subscribers to comment on aspects of their service, such as: (a) ease-of-use of the technology, (b) quality of the communication with the provider, (c) satisfaction with programs, and (d) reliability of the technology. Those who use the service day-to-day are the strongest indicants of whether the DLS provider has a reputation which is positive among users.

Cost for Service.
The costs for DLS vary greatly among providers. You will have to carefully evaluate which service best maximizes the funds you have allocated for this service. You will need to analyze both the on-time costs associated with installing the equipment and the ongoing costs associated with programming and maintaining the

Initially, students and teachers may have to be offered incentives to participate in the instructional offerings. As the novelty of the technology fades, the ultimate success of the network rests on human factors.

TI-IN
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COMMUNICATIONS DAILY
WASHINGTON, D.C.
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Education Dept. has awarded grants totaling $14.3 million under Star Schools educational telecommunications program, intended to increase secondary school access to specialized courses. All recipients also received funding in program's charter year in 1988. Grantees: Midlands Consortium, group of state universities, $4.13 million; TI-IN Network (San Antonio), $4.12 million; Satellite Educational Resources Consortium, public TV-state education department joint venture, $4.01 million; Technical Educational Research Center (Cambridge, Mass.), $2.03 million.

GENEVA, N.Y.
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SEP 1989

TI-IN UNITED STAR NETWORK.

Educational Network installs equipment

The last of 243 schools in 19 states received satellite equipment in April under a Department of Education grant allocated last fall to bring math, science and foreign language classes to students in rural or isolated areas, according to Dr. Pamela Pease, director for the TI-IN United Star Network.

The network is broadcasting live, interactive classes in calculus, physiology, French and other subjects to remote schools through a $5.6 million grant as part of the federal Star Schools Program. Under this program, the government allocated $18 million in grants this past October to four partnerships for the development of high-technology, distance learning networks.

The TI-IN United Star Network—a multi-state partnership composed of the San Antonio, Texas-based TI-IN Network and eight educational agencies and institutions—was the first system to begin operations under the program and to complete equipment installation at all of its designated schools. According to Pease, the last of these school sites began full-scale operation in April, offering live, interactive satellite instruction to hundreds of students.

With the 243 school site link-ups complete, TI-IN United Star Network is now on-line and operational in 19 states including California, Oregon, Washington, Montana, Colorado, Nevada, Arizona, New Mexico, North and South Dakota, Wisconsin, Minnesota, Oklahoma, Texas, Mississippi, Alabama, Illinois, North Carolina, and New York. The TI-IN United Star Network is the only network selected to serve Bureau of Indian Affairs schools, 17 in all.

The TI-IN Network was the first private satellite network established for the communication of educational resources. With subscribers and a satellite broadcast system already in place, TI-IN and its partners in the TI-IN United Star Network have been able to use their alloted funding —$5.6 million in total this year—to provide all equipment and installation at each of the schools free of charge. This equipment package includes a satellite receiving antenna, a 20-inch color TV monitor, an electronic writing tablet, a printer and a cordless telephone that students use to respond to their teachers. The only thing the school must provide is the telephone line installation.

For reader information, contact Pam Pease, Director, TI-IN United Star Network, 1000 Central Parkway North #190, San Antonio, TX 78232 (512)490-3900.

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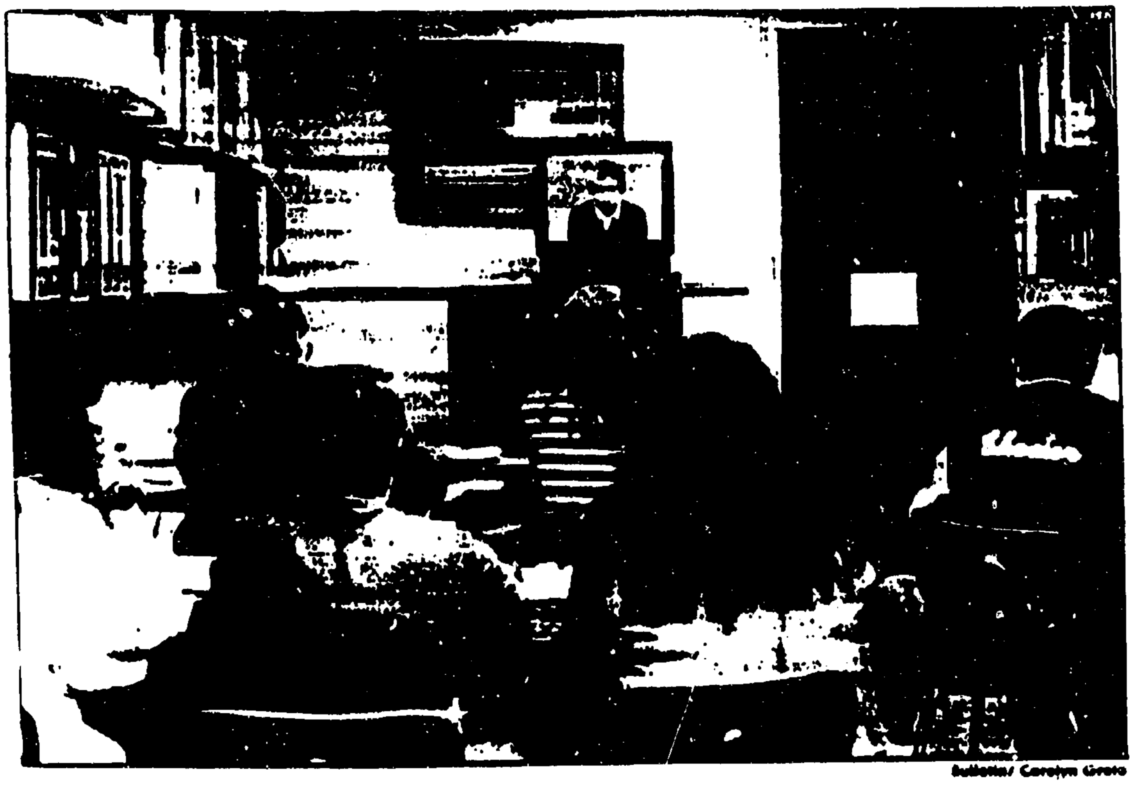

Bulletin/ Carolyn Grote

Students see instructor in Alabama on screen in Madras High School

Yen for language satisfied

Satellite system teaches Madras pupils to speak Japanese

By Carolyn Grote
Bulletin Correspondent

MADRAS — Japanese spoken here? Possibly soon.

That is the hope of six Madras High School students whose interest in learning to speak Japanese inspires them to attend on their own time a 7 a.m. class each weekday. That's time they could be spending asleep or doing something unrelated to school.

The opportunity to earn extra credits for classes not offered at the Madras High School originated about a year ago when the school district accepted $9.200 worth of equipment and first-year free tuition through the Ti-In Network, which is televised into classrooms across the nation from San Antonio, Texas.

The program stems from Title IX, the Star Schools Program Assistance Act, authorized under the Education Economic Security Act.

The program is designed to offer enrichment courses in mathematics, science and foreign languages to rural schools that otherwise would not have these programs. Ti-In also provides staff development programs to help teachers improve.

This year, in addition to Japanese, five students are studying French and three are enrolled in psychology.

The Japanese instructor is Sukero Ito, a professor at the University of Alabama.

Last week students were practicing short phrases that were beamed to the small Madras classroom via satellite.

news from Madras

swered by Ito on the screen.

And what else would those first phrases be about but hamburgers and soft drinks?

"Please eat the hamburger — how you say," Ito asked.

"Please drink cola," he added.

Ignorant of the most simple Japanese words, a Bulletin reporter didn't know whether students answered correctly, but they answered.

Then being near Halloween, Ito asked, "How you say Halloween?"

Grinning, he explained that Japanese imitate the U.S. custom with parties and putting makeup on their faces, but, he said,"It isn't a cultural thing."

Down to the serious business of teaching, he encouraged the students' efforts.

"I hope every one did well on this (lesson) and if you did you have seven points," he said about their answers that they had written down and given to the facilitator, Jim Nibler.

But the real tests and grades come from examination papers sent to instructors in San Antonio.

As a dual program for the network and University of Alabama, the Japanese course is tuition-free this year, said Gus Roberts, the high school librarian who also is in charge of the program.

French and psychology costs each student $240 per class per semester, and is paid with $3.000

tough at times." She added that she signed up for the course because "I thought it was an interesting language and I wanted a change of pace from Spanish," the only foreign language offered in regular high school classes.

Junior Justin Chester, like Buslach, was looking for a change of pace aftr studying Spanish for a year.

"I kind of thought it (Japanese) would be interesting and I decided to try something else.

"My grandparents know the language very well and my grandpa speaks it very well," Chester said.

"I've shown him a few words I know and he was pretty excited." Chester's maternal grandparents are second-generation Japanese and live in Caldwell, Idaho.

Sophomore Juanita Wickham said, "I'm taking it basically as a foreign language. I just wanted to see how a difficult language would be but basically it's so easy because it's so much like English."

Wickham also likes to write the Japanese characters.

"It's almost like art," she said.

The Madras-area district is one of nine schools statewide taking advantage of the enrichment programs offered by Ti-In.

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AUG 30 1989

TI-IN UNITED STAR NETWORK.

Satellite orientation set for tomorrow at library

By GREG RAINS
Standard Staff

An open-house orientation for the distance learning project — a satellite-based language instruction program — is scheduled tomorrow at 1:30 p.m. in the Warren County Senior High library.

Robert Nelson, national sales manager for the TI-IN united STAR network, will be on hand to demonstrate the satellite equipment to school officials and all who are interested in the program. STAR is an acronym for Satellite Transmitted Academic Resources.

"It is brand new for us and we're really excited about it," said senior high vice principal Priscilla Wanamaker. She is the local director for the pilot project.

Eight senior high students will receive Japanese I instruction from San Antonio, Texas, when the program becomes operational.

Funding for the hardware of the program is derived from a $13,500 grant from the state Department of Education. Hardware purchased with the funds include a satellite dish, a VCR, a video monitor, a printer and a telephone.

Additionally, books and audio tapes have been furnished with the grant monies.

When asked the purpose of the telephone, Wanamaker explained the students will be able to contact the instructor and ask questions. The system is designed to be interactive and nothing like a television broadcast, she noted.

The VCR will make it possible to tape programs for later reference by the students. Also, the tapes will be available for viewing by the general public. Those interested in this should contact Wanamaker to make arrangements.

While local teacher Laura Miner will be in the classroom to operate the equipment, the instructor in Texas will be doing all the teaching, stated Wanamaker. Tests will be sent to the Texas-based instructor.

Cost for the year-long subscription to the satellite service is $5,200. Additionally, a charge of $480 per student is accessed.

EDUCATION

Federal Money for 'Star Schools' Likely

Congressional Aide Expects Third Year Funding for School TV Program

BY RICHARD BARBIERI

Congress is likely to fund a third year of a U.S. Department of Education program encouraging the use of technology in education, according to a key Congressional aide.

An aide to the Senate Labor and Human Resources Committee who spoke on the condition of anonymity is "very optimistic that there will be continued funding, maybe even increased funding" for the "star schools" program. Congress authorized the Education Department to spend $100 million from 1988 to 1992 on star schools. Four projects received grants totaling $19.1 million in fiscal year 1988 and $14.4 million in fiscal year 1989. None of the four grantees in the first two years could by law receive third-year funding.

The Bush administration sliced third-year star schools funding from its budget for fiscal year 1990, which begins Oct. 1.

"There is some reasonable expectation that that will be funded," said Frank Withrow of the Education Department.

"The program is working so well, and with all the priorities we're talking about in terms of education it would be very unusual for them not to continue funding," said Henry J. Cauthen, co-chairman of grantee Satellite Educational Resources Consortium and president of South Carolina ETV.

A position paper by the National Association of Public Television Stations, the lobbying and research group, calls on Congress to give $20 million to the star schools program in 1990.

"The star schools legislation has stimulated some of the most creative thinking in the link between education and technology that has occurred in decades, if ever," according to NAPTS.

"The current star schools projects have been highly successful in providing educationally disadvantaged students and their teachers with access to outstanding educational programs," NAPTS argued. "Students are being given opportunities that are not otherwise available," the paper continued.

The paper by NAPTS identified proposed and current educational technology projects in 11 states that would be likely to apply for grants if Congress continues the program. The projects range from a statewide telecommunications network in Iowa to a proposal by WNET-TV in New York to target in-school programs to high school students who are at risk of failing.

A bill was introduced May 22 by Sen. Wyche Fowler, D-Ga., that would "establish a nationwide rural star schools program to improve educational opportunities in rural areas." The bill, S. 1019, would authorize the U.S. Rural Electrification Administration to hand out $50 million in grants to improve educational technology between 1990 and 1994.

Chalmers H. Marquis, a congressional relations staff member at NAPTS, termed the Senate bill "greatly different" from the star schools law. "It's entirely telephone. The word television never appears in the bill. What's behind this is the rural telephone companies," he said.

CURRENT PROJECTS

SERC, which received a $5.6 million first-year star schools grant, conducted a four-month pilot semester recently of science, math and foreign language courses beamed directly to schools. More than 350 students enrolled. In a full semester this fall, 3,600 students at approximately 400 high schools will enroll, Project Manager Gail Arnall said.

The four-state Midlands Consortium, based at Oklahoma State University in Stillwater, used its $5.5 million first year grant to install 100 satellite receiving antennas in Mississippi, Alabama and Kansas, said Marshall Allen, director of educational television services at the university. The consortium distributes instructional programs in Russian, chemistry, economics and other subjects.

The Cambridge, Mass.-based Technical Education Research Centers (TERC) received a $2.5 million star schools grant to develop technology-based curricula in advanced science and math. More than 200 teachers and 6,000 secondary school students have participated in the project since last October. "We're very interested in using technology in education but using it in more creative ways that really can affect learning," said Peggy Kapisovsky, communications director at TERC.

The TI-IN United Star Network, a private "distance learning" network based in San Antonio, Texas, used a $5.6 million star schools grant to develop instructional technologies such as videodiscs, said Pamela Pease, director of the network. "We've been able to expand our offerings so they are available across the nation," she said. TI-IN uses television to teach junior high school and high school students across the country subjects they need to graduate, Pease added.

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TIME

Video

Beam Me Up, Students

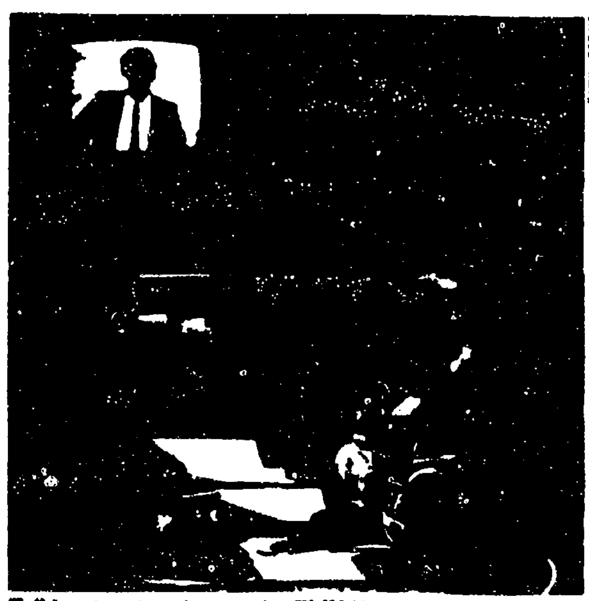
Satellite TV brings live teachers to far-flung schools

In public education, geography has long been destiny. Crippled by limited staffs and tight budgets, rural districts have often found it impossible to offer courses such as Russian and physics that are considered standard by their more cosmopolitan counterparts. Now all that is changing, thanks to the arrival of the electronic classroom. By using interactive video, even small, disadvantaged schools are gaining access to the most sophisticated instruction available, and all without losing the human touch.

The formats and course offerings are as varied as the sponsors, which include federal and state governments, universities, public-television stations and commercial networks. Unlike Whittle Communications' *Channel One*, however, which beams news and ads into schools on regular television, the electronic classroom enables instructors and pupils to hear and interact with one another much as they would in any normal setting. But the visuals are still one-way: students can see the teacher, but not vice versa.

Televised courses can be a bargain for financially strapped schools. A district may pay as much as $8,000 for a satellite dish, cordless phones and the electronic keypads or computer terminals needed for students to communicate with their long-distance teachers. That one-time outlay amounts to far less than a conventional teacher's annual salary. Like network anchors, video teachers submit to screen tests and often conduct their classes without a studio audience.

The tele-classroom has been especially valuable in states with small populations and struggling economies. Last year, when 15 of the 28 students at Maine's Allagash High School protested the dearth of humanities courses, the University of Maine decided to fill the gap. This fall the university will offer more than 20 courses, including elementary French and algebra, to 23 Maine schools.



Talking to a teacher on the TI-IN Network

Cheaper and more varied courses, but less control.

Other states are scrambling to enter the video age. Last January the Kentucky Education Network began beaming probability-and-statistics classes into 65 far-flung high schools. By September Virginia expects to have earth stations at every one of its 289 high schools. Private networks, such as the Texas-based TI-IN Network, go even further, sending instruction to more than 750 school districts in 29 states.

Most students seem pleased with long-distance learning. Ninth-grader Vanessa Bryan, one of only 700 residents on Ocracoke Island, N.C., could not have taken Spanish if her school had not tapped into the TI-IN Network. Now she and "classmates" in 18 schools across the country receive instruction from a teacher based in a San Antonio studio. They accept TV tutelage as routine. Says Vanessa: "It's a good course."

Some public school administrators are concerned, however, that the new technology will erode their control. Principals have little leverage over teachers who live hundreds of miles away and do not teach exclusively in one district. Adolescent daydreaming carries less of a penalty when students know they can view a lesson on tape. "We don't play the typical games," says David Benke, who teaches computer science to pupils from San Isidro, Texas, and Prescott, Iowa. "You've got to have a student who really wants to learn."

But in many respects—even socially—TV classrooms are comparable to traditional ones. In Texas, Ramona McDaniel of Thorndale and Tim Williams of Sabine Pass, more than 250 miles away, became acquainted through a satellite German class and began corresponding two years ago. This week Williams will escort McDaniel to her spring prom. Says McDaniel of the electronic matchup: "It's a little odd, I guess, but I think it's neat." —*By Susan Tifft.*

Reported by John E. Gallagher/New York and Michael Mason/Atlanta

TI-IN UNITED STAR NETWORK.

8B/SATURDAY, OCTOBER 8, 1988 SAN ANTONIO LIGHT

$5.5 million grants TI-IN to education program

By MYRON STRUCK
States News Service

WASHINGTON - The TI-IN Network Inc. of San Antonio Friday became one of four regional networks to share in a budding Education Department program, designed to aid students in isolated small and disadvantaged schools.

The $19 million in funding, which includes a $5.5 million award to TI-IN Network, is targeted to partnership programs that will blend the work of education agencies, universities, private industry and public television stations in rural education projects.

The TI-IN Network will work with 244 schools serving Indian and disadvantaged elementary and secondary students in 14 states throughout the Sunbelt to provide instructional programming.

The network will use two-way satellite broadcasts that feature "electronic writing tablets" that allow students to respond to teachers' questions.

"We've assembled an outstanding group of in- ation to help us meet this educational and telecommunications challenge," said Lloyd Otterman, chairman and chief executive officer of TI-IN.

"The sheer size of this governmental effort represents a quantum leap for the concept of distance learning."

The network's role, in addition to installing and maintaining downlink stations, will be to coordinate the selection and transmission of courses, he said.

Others receiving grants are the Midlands Consortium, a five-state partnership based at the Oklahoma State University in Stillwater; Technical Education Research Centers Inc., of Cambridge, Mass.; and the Satellite Educational Resources Consortium, based in Columbia, S.C.

The winners were selected from 60 applicants. The funding covers the first of a planned two-year demonstration program.

In addition to projects in Texas, the TI-IN Network will work in Alabama, Arizona, Colorado, Illinois, Montana, Mississippi, Minnesota, Nebraska, North Carolina, Nevada, Oregon, South Dakota and Washington.

The group will draw on resources from the Region 20 Education Service Center in San Antonio, University of Alabama at Tuscaloosa, California State University at Chico, Western Illinois University at Macomb, Mississippi State University at Starkville and the North Carolina Public Instruction Department at Raleigh.

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FEB 2 1989

TI-IN UNITED STAR NETWORK.

BIA Schools Will Get TI-IN Satellite Network

Sixteen Bureau of Indian Affairs schools in 11 states will benefit from a $5.6 million "Star Schools" grant awarded by the U.S. Department of Education. The grant to the TI-IN United Star Network of San Antonio, Texas, will enable the network to provide the schools with direct student instruction and teacher training in the subject areas of mathematics, foreign languages, and sciences via satellite.

Since its inception in 1985, the TI-IN Network has provided live and interactive high school courses, staff development and other instructional programming by satellite. The courses provided are usually unavailable at rural isolated schools.

The installation of the hardware will begin this month and is expected to be operational by February. The "Star Schools" grant is for one year and will be eligible for renewal next September.

An orientation meeting is planned on February 8 at 3:30 p.m. in Room A-I of the Cheyenne-Eagle Butte High School for anyone interested in learning more about distance learning through the TI-IN Network. Plan to attend for an exciting educational experience.

A minimal local registration fee of $10 will be charged to cover the cost of program facilitation, registration forms, postal expense and monthly telephone service line.

Cheyenne-Eagle Butte Educators have priority use of TI-IN programming. Approval and arrangements are required for video taping any programming for student enrichment and-or instructional lesson planning.

The Cheyenne-Eagle Butte High School will be able to offer more courses for credit with the TI-IN Network. However, students must consult with the high school principal and-or guidance counselor to determine if they are eligible to enroll in these courses.

The satellite network will also offer in-service workshops and graduate credit courses for teachers.

BIA schools participating in the "Star Schools" project by state are: Arizona, Hopi; California, Sherman; Minnesota, Chief Bug-O-Nay-Ge-Shig; Montana, Rocky Boy Tribal; Nevada, Pyramid Lake; New Mexico, Santa Fe and To'Hajiilee-He: North Carolina, Cherokee Central; North Dakota, Turtle Mountain and White Shield; Oklahoma, Sequoyah; South Dakota, Flandreau, Lower Brule, Crow Creek and Cheyenne-Eagle Butte, and Wisconsin, Oneida Tribal.

A $10.00 local registration fee is required for the duration of Spring Semester 1989 program viewing. By registering for the Spring Semester Membership, the participant has access to all programming in that period only. (The local registration fee is subject to change after Spring 1989 term.)

Viewing participants must pay for any additional materials and transcript credit if they are seeking continuing education units where indicated.

Consult the Spring 1989 Program Guide or call Lanni Lee at 964-8410 for further information.

For college credit courses a $10 local registration fee is required in addition to accrediting college registration as indicated in the Spring 1989 Program Guide. Plan well in advance of the beginning of class to receive books and materials if they are required.

Viewing participants must pay an additional registration fee to the accrediting college as well as for any required textbooks or materials as indicated in the Program Guide.

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RENO METROPOLITAN AREA

TI-IN
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U.S. education chief visits tiny Nevada school

By Courtney Brenn/Gazette-Journal

NIXON — Washington, D.C., met rural Nevada Friday when U.S. Education Secretary Lauro Cavazos went calling on one of the state's smallest schools.

Cavazos, 62, was in Reno Friday night to receive a leadership award and deliver the keynote address at a University of Nevada-Reno Foundation banquet. In the morning, he made a side trip to the 30-student Pyramid Lake High School at the invitation of school officials, who wanted to show him their pilot program that connects students in the middle of the Nevada desert with classmates across the nation.

The tiny school, launched after a campaign by Nixon residents to have a community school, has long been struggling with substandard facilities that didn't go unnoticed by the education secretary. But the peeling paint, dated equipment and holes in the walls of the closet-sized classrooms took a back seat to educational philosophy and teaching techniques as Cavazos toured the campus, a converted government building that began with 35 students 10 years ago.

"I think this is a remarkable school," Cavazos said. "I sense a lot of love in everyone here, and an enthusiastic, bright group of young people."

Joan Dixon Allen/Gazette-Journal

VISITOR: Education Secretary Lauro Cavazos, with Pyramid Lake High students Monika New Moon, left, and Jamie Williams, takes part in a class by satellite.

He acknowledged the Bureau of Indian Affairs school, located on the Pyramid Lake Paiute Indian Reservation 48 miles northeast of Reno, is in dire need of a new building. But he lauded educators there for overcoming the less-than-perfect environment.

"What was going on within those walls was the important part," he said. "I saw people working together. The community is very close, they've got excellent (school) leadership, and the families are involved."

During his visit, Cavazos reiterated his call for a restructuring of the education system, which he said has stagnated with little improvement in test scores or graduation rates in the last three years. He said the system could be upgraded with merit awards for schools that improve themselves and an increase in schools that offer specialized instruction.

The sixth-generation Texan, whose first school experience was in a two-room schoolhouse where both English and Spanish were spoken, talked of his com-

See EDUCATION, page 6A

Education chief

From page 1A

mitment to early childhood education. He urged parents to begin reading to and communicating with their children when the kids are 1 or 2.

"And then keep up the communication with the teacher after the child starts school," he said. "Parents must be involved through their children's entire education."

At Pyramid Lake, Cavazos also sat in on a unique four-student sociology class taught via satellite in a small classroom. Students in 31 states, hooked up by telephone to the course led by teacher Pat Riley in San Antonio, Texas, had an opportunity to call in and grill the education secretary on issues such as testing, discipline, class size and university funding.

The federally funded TI-IN Network is designed to extend more educational opportunities to small areas with limited teaching resources.

It was Cavazos' first experience with the "Star Schools" satellite program since becoming education secretary Sept. 30. His department financed the four regional partnerships in the program with a $19 million grant in October.

During the call-in questioning, Cavazos said he thought teachers and parents need to be more involved in school decision-making, and that teaching can be "professionalized" by giving teachers more responsibility.

But when an Oregon student asked Cavazos what he thought of the "effective schools movement," a 10-year-old program that patterns teaching techniques after those used in certain public schools that are unusually successful, the secretary seemed stumped and handed the phone to Nevada Superintendent of Public Instruction Eugene Paslov.

Paslov said the movement can be seen in Nevada through the state's school improvement program, used in about 60 elementary and secondary schools. The system includes cooperative teaching, student tracking and parent outreach programs.

Cavazos later met privately with school officials, Paiute tribal Chairman Joe Ely and Paslov before returning to Reno to visit the UNR's College of Education and receive a leadership award at an evening banquet as part of his 11-day tour of schools across the country.

Starla Searawop, a 16-year-old Pyramid Lake junior who helped guide Cavazos through the school and introduced him to the satellite program, said she was thrilled to meet the secretary of education, who she said treated the students with respect.

TI-IN
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EAST OREGONIAN
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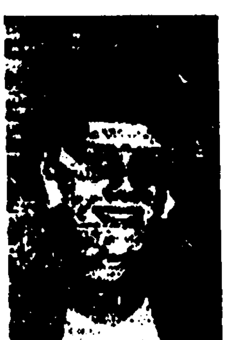
MAR 26 1990

Ukiah student chosen

By CARISA CEGAVSKE
of the East Oregonian

UKIAH — Tiny Ukiah School will get lots of exposure in April, when a 16-year-old Ukiah student will be co-host for a nationwide television broadcast in Texas.

Niki Gudmundson said she was about to turn off the school's television set when she was announced the winner of a video contest run by the TI-IN educational network.



Gudmundson

As her hand was on the knob, Ukiah was announced as the winning school.

"It was surprising," Gudmundson said. "We sat down and went 'Wow.' "

Gudmundson is one of two students chosen among 200 to host the live April 5 broadcast of Student Council of the Air. Though as many as 6,000 students coast to coast may watch the broadcast, Gudmundson said she's not nervous about being on the air.

During the broadcast on TI-IN network in San Antonio, Texas, Gudmundson will present the video to students around the nation.

Others who helped make the video were junior Amy Collar, senior Brad Collar, and freshman Ian Gellerson. Gellerson gave a judo demonstration as part of the video.

Gudmundson said the video features a shot of the 52 members of the smallest student body in the state, and scenes of her favorite sports — judo and track.

Gudmundson, a junior at Ukiah High School, is secretary of her school's student council.

Gudmundson is one of 6,000 students enrolled in 21 TI-IN classes via satellite. She watches sociology and Japanese classes on TI-IN and the school also receives the network's anatomy course.

The TI-IN network's Student Council of the Air is a monthly program about leadership skills for teen-agers.

High school students from coast to coast participate in the program without leaving their classrooms.

By picking up a cordless telephone, they are connected automatically to the studio and can ask questions of the month's host.

Gudmundson, who will travel by herself to San Antonio, said she'll meet lots of people and see Sea World, the Alamo, and the River Walk, a riverside area surrounded by booths.

She said she's been to San Antonio before and enjoyed it.

TEXAS EDUCATION AGENCY

TI-IN UNITED STAR NETWORK.

NEW BOSTON, TX
CITIZENS TRIBUNE
-- S W 12,500--
TEXARKANA METROPOLITAN AREA

Students and teachers at Maud to enjoy satellite classes

By Faye Escalante
Tribune Staff

MAUD - Students, teachers, administrators, board members and community residents can now take advantage of classes offered through the recently installed TI IN network

The Interactive Satellite Television Network, which was funded by a federal grant includes both the Texas T-IN network and the national education network, STAR.

Although the equipment was installed too late to provide credit classes to students during the first semester this year, they will be available next semester. Currently provided are staff development and student enrichment programs.

To encourage the teachers to participate in the staff development programs, they can replace the mandatory teacher in-service December 20 with six hours of the programs.

Student enrichment programs include such offerings as a [illegible] for elementary students [illegible]saurs and a program on the Alamo. Wava Stinnett, who is the program facilitator plans to record all the student enrichment courses to be kept in a video library. The student enrichment segments can be recorded as can some of the staff development courses.

Credit courses which will be available next semester for students include languages such as Spanish, Japanese, Latin, German or French at varying levels. Other classes offered by satellite include computer science, physiological anatomy, trigonometry, psychology and sociology and reading improvement. Mrs. Stinnett is also recording the Japanese classes for a teacher who has always wanted to study the language.

"It's an opportunity for students to take courses that we are unable to provide at Maud," explained Superintendent Robert Stinnett.

The only cost to the school district during the first year is the telephone line which is about $19 a month. After this year, there will be an annual subscription fee of $4,000.

The TI-IN system has been operational in Texas for about four or five years now, according to Mr Stinnett. It was created primarily for the small and isolated school district which could not reach state mandates for course offerings. Maud received the service and equipment through a federal grant administered by the Texas Education Agency.

Currently there are 22 school statewide equipped with TI-IN, and only two of those are in Region VIII Education Service Center area, Maud and Sulphur Bluff.

The telephone connection allows students to talk to the instructor of the course as well as to other students involved

One instructor asked all the students to send a photograph and some information about themselves so that in future classes, their picture can be displayed so that everyone who is watching will see the student who is talking to the teacher.

The TI-IN includes the television, telephone, video cassette recorder and satellite dish. When a student needs to talk to the teachers all they have to do is pick up the telephone handset and they are automatically connected.

The schedule of programs is sent to the school a semester in advance so that teachers and students can work their schedules around them. For a fee, teachers can obtain graduate college credit through the satellite network.

Also available at a fee is a course which prepares students the the SAT college entrance examination. "I think something that will really help our college bound students," Mr. Stinnett noted. "There is also a college night when recruiters from all the colleges will have a program and parents can come."

If future programming does not include a similar preparation course fo the ACT test, Stinnett said he will be able to suggest it to the satellite service.

There are also programs which can be made available to the community, administration and school board.

"I just want people to be aware of the service and the types of programs available," Mrs. Stinnett noted. "This is great for a small school that can't afford to offer all these classes."

Wava Stinnett displays the TI-IN Satellite equipment which will be used at Maud ISD to provide educational opportunities to students, teachers and the community

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TI-IN UNITED STAR NETWORK.

WEST, TX
NEWS
—W. 3,400—
WACO METROPOLITAN AREA

FEB 9 1987

Abbott school to get Star Schools Grant

ABBOTT - The Abbott Independent School district was informed Feb. 1 of its receipt of a Star Schools Grant. The grant program was developed by the U.S. Department of Education and is designed to encourage the expansion of educational opportunities for students in isolated, small and disadvantaged schools.

Abbott is to receive a satellite disk and a complete satellite instructional network known commercially as the Ti-In United Star Network.

Cost of the network's initial setup and installation is $35,050. That cost is paid by the grant. The local district's only costs the first year are $75 for telephone installation used for student direct contact with instructors during class presentations via satellite and the enrollment fee for students taking classes (about $250 per semester).

Courses that may be taken by high school students via satellite include: those in a variety of languages, high level math and science courses, fine arts and the social sciences.

Other uses for the Ti-In Network include: college credit courses, teacher in-service, school board member training and conferences.

Abbott Superintendent of Schools Harley Johnson said the addition of the new system will allow Abbott to expand the school's curriculum considerably, without employing additional teachers. Johnson said "with Ti-In, a student in Abbott can, for example, take a calculus class from a teacher in New Mexico and by telephone communications ask a question of the teacher and it be heard by another student in Ohio."

"The materials and the teacher presentation would be effective," Johnson said, "but the instant vocal communication is really what makes it so effective."

Several schools in the Central Texas area applied for the Star Schools Grants. Some Texas schools have utilized the system in the past and its courses have been approved for high school credit by the Texas Education Agency.

TI-IN UNITED STAR NETWORK.

Express-News
San Antonio, Texas
June 14, 1989

Satellite technology enhancing education for S. Texas students

By D.L. GRANT JR.
Express-News Staff Writer

When you were in school, the notion of studying with a classmate in a school clear across the country was probably remote.

However, satellite technology, now being used in an educational method known as "distance learning," has made it possible for students to do just that.

"It's really exciting," said Pamela Pease, director of the San Antonio-based TI-IN United Star Network, Inc., a consortium of nine partners from universities, state education agencies and private industry.


PEASE

For example, "Someone in Poteet now has a classmate in Lake County, Calif.," she said.

Under the national Star Schools Program, formed last year by the U.S. Department of Education, TI-IN was awarded one of four grants for telecommunications partnerships to provide distance learning.

She said Star Schools tend to be Chapter 1 schools, which means they have been classified by the government as schools facing geographic, economic, educational or cultural barriers.

South Texas school districts in the Star Schools program include Utopia, Pearsall, Stockdale, Asherton, Cotulla and Breckenridge. San Antonio Star Schools are Southside, Edgewood, Highlands, Burbank and Fox Tech high schools.

The partners making up the TI-IN United Star Network are the University of Alabama at Tuscaloosa, California State University at Chico, Western Illinois University, Illinois State Board of Education, Mississippi State University, North Carolina Department of Public Instruction at Raleigh, Texas Education Agency, Region 20 Education Service Center in San Antonio and the TI-IN Network, Inc.

Pease said one of the biggest advantages of the Star Schools program is that less affluent schools, by subscribing to the services, are now able to offer students course work which was once considered impossible because of a lack of instructors or funding.

"We're providing access to math, science and foreign languages to schools that otherwise wouldn't have the teachers or economic resources to hire a teacher," she said.

She said TI-IN offers a total of 25 high school credit courses across four channels, five of which were developed under the Star Schools program.

"Students meet like they would in regular class, except they have audio and video equipment that allows them to receive the satellite signal," she said. "It's all live and interactive."

Using what is known as the talkback system, students are able to communicate with instructors and classmates over toll-free telephone lines, she said.

Under this system, instructors display photographs of student callers to class members at other sites so they know who is speaking.

The Star Schools program, which emphasizes instruction in math, science and foreign languages, will add courses in Japanese, advanced French and Spanish, physical science and anatomy and physiology.

Meantime, summer students are being offered courses in algebra II and physical science.

However, she said while the program has made strides in creating academic resources for schools, some educators have feared the program will ultimately allow schools to do away with teachers.

"There's always a fear that we're replacing teachers," said Pease. "We aren't replacing anyone. We're enhancing the schools."

BEST COPY AVAILABLE

SAN ANTONIO, TX
W. SIDE SUN
—W. 45,000—
SAN ANTONIO METROPOLITAN AREA

TI-IN
UNITED STAR
NETWORK.

Students meeting in 'long distance' classes

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She said schools tend to be Chapter I schools, which means they have been classified by the government as schools facing geographic, economic, educational or cultural barriers.

Local high schools in the program include Southside, Edgewood, Highlands, Burbank and Fox Tech.

Partners making up the network are the University of Alabama at Tuscaloosa, California State University at Chico, Western Illinois University, Illinois state board of education, Mississippi State University, North Carolina separtment of public instruction at Raleigh, Texas Education Agency, Region 20 Education Service Center in San Antonio and the TI IN Network Inc.

Pease said one of the biggest advantages of the program is that less affluent schools, by subscribing to the services, are now able to offer students course work which was once considered impossible because of a lack of instructors or funding.

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"There's always a fear that we're replacing teachers," said Pease. "We aren't replacing anyone. We're enhancing the schools."

She said the program "has become a resource sharing network for the country," allowing teachers as well as students to benefit.

For example, California State Chico will offer college credit courses for teachers; Western Illinois will have enrichment programs for children who want mathematics careers and Mississippi State will provide teacher certification instruction.

Pease, considered an expert in applying the latest technology for use in educational programs, said her ultimate goal is "to equip schools that have been economically and educationally disadvantaged with satellite receiving equipment."

SAN ANTONIO, TX
W. SIDE SUN
—W. 45,000—
SAN ANTONIO METROPOLITAN AREA

JUN 22 1989

TI-IN UNITED STAR NETWORK.

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WESTERN ILLINOIS UNIVERSITY

TI-IN UNITED STAR NETWORK.

PITTSFIELD, IL
PIKE PRESS
[illegible]

MAR 7 1990

This multi-talented student performs well on many stages

NAME: Bill Dean.

BACKGROUND: 17 years old; senior at Pittsfield High School; son of Everett and Judy Dean of New Salem; youngest of four children.

ACCOMPLISHMENTS: Four-year member of the Quiz Bowl team, named MVP past year; recipient of first, second and third place medals in the TEAMS engineering graphics competition for the past three years; SAR good citizenship award; second place in MacMurray College math competition last year; numerous awards for music contest work.

SPECIAL INTERESTS: Performs with PHS swing choir; has been in numerous local theater productions; sang in a trio which won three area contests last summer; enjoys making Christmas gifts in his father's woodworking shop; works at Hardee's.

FUTURE PLANS: Has been accepted in the engineering program at Rose Hulman Institute of Technology in Terre Haute, Ind.; is also considering the engineering program at Washington University in St. Louis.

Bill Dean wears a satiny toga for his role as Hero in this weekend's Pittsfield Theatre Guild musical production. The audience may laugh – but he's the one who gets to kiss the heroine!

Student Spotlight

By JULIE DOREN

There aren't very many high school students who would come to school an hour early each day, just to add another class to an already-full academic schedule.

Bill Dean is that student.

From 7:30-8:20 a.m. each morning, Bill studies French via the school's TI-IN satellite network. He was recently named a TI-IN "Star Scholar" for his straight A work in the class.

"I thought it would be interesting to learn another language," said Bill, who has also studied two years of Spanish.

It's a safe bet Bill wouldn't have been able to work in French at any other time of the day; his schedule is already so full that he has but two study halls each week.

For most of the year, Bill hasn't minded the early call for French, but "it's been hard the last couple of weeks," he admits.

Since the end of January, Bill has been rehearsing nightly for his role as Hero in the Pittsfield Theatre Guild production of "A Funny Thing Happened On The Way To The Forum." Following three performances last weekend, he has three more to go this Friday, Saturday and Sunday.

Looking back on his life, Bill jokes that he's "been in Spanish Club two years, National Honor Society two years and Theatre Guild forever."

Forever, in this case, means

Bill says he has no memory of why he tried out for that show; he suspects his older sister Rachel had something to do with it.

And, although he was required to sing a solo in front of hundreds of people in the PHS auditorium, Bill does not recall being nervous about the performance. Instead, he just kept coming back for more: "Encore 83," "You're A Good Man, Charlie Brown," "Death Takes a Holiday," "Grease," "Bye Bye Birdie" and now "Forum."

"They're fun to do," Bill observed. "If I make a fool out of myself, nobody will care. I like running lights and sound, too," he added.

A soft-spoken, easy-going type, there doesn't appear much that Bill *doesn't* like.

"I enjoy tests if I've studied

map studies. I like Trivial Pursuit – and I watch 'Jeopardy'," Bill added with a grin.

With such a broad range of interests, what do Bill's Quiz Bowl teammates count on him to answer?

"I'm strongest in geography," Bill answered immediately. "As soon as they say, 'What's the capital of . . .', I'm ready. My hand is on the buzzer."

Perhaps this diversity of interests leaves Bill a trifle unsure of what his future career choice will be. He's looking at schools which offer engineering programs, but from an integrated approach.

He says his dream job would be, "something where I don't sit all day, something where I work with my hands some."

Of one thing this multi-

MACOMB, IL
JOURNAL
D. 8,461 S. 8,540

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MAY 16 1990

TI-IN satellite system helps rural schools

pportunities rought in a ngle year

hat do students in LaHarpe, War-, Augusta, Dallas City and In-try have in common with students n Flora and Christopher or a nber of others located around the ted States?

hese pioneering youngsters are ong more than 300 Illinios dents faced with educational op-tunities they could only dream ut one year ago. They are cur-tly enrolled in courses offered via ellite over the Western Illinois versity/Illinois State Board if ucation (ISBE) Satellite Educa- Network, a live interactive one- video, two way audio satellite-nsmitted system that allows dents to talk to their nationally-ognized instructors by phone.

"Currently, we have more than 300 dents in Illinois benefiting from eractive satellite instruction. rollments will likely top 400 during spring semester," said Mike ckson, director of the WIU/ISBE ellite Education Network. "By rch, we expect the number of Il-ois downlink sites to reach 100, in-ding the 25 which have purchased ir own equipment. We are excited out the enrollment increases."

Designed to give rural schools a t-effective means of providing dents with advanced academic d student enrichment courses, the tewide system was instituted in ril 1989 when 52 of Illinois' 84 wnlink sites simultaneously went line for the first broadcast from IU. Course offerings through the twork include advanced math and ences, foreign languages and a rie ...ers which typically ve ...enrollments in rural hoo...

"The network enables rural districts with small student enrollments to provide courses available to students in larger metropolitan districts," said Dave Taylor, dean of the WIU College of Education. "It allows schools hampered by scarce academic resources and limited staffs to expand their curriculum to meet the unique needs of their students."

Though technologically different, the instruction is similar to what students have come to expect from classroom experiences. Not unlike the traditional classroom, a satellite class allows students to interact with the instructor and other students, take tests, complete homework assignments and work at the blackboard.

Unlike the traditional classroom however, work students perform at the board is transmitted on a graphics tablet to an instructor who may be 2,000 miles away and completed homework is mailed to the instructor who then gives the student his or her final grade.

"Although critics have questioned the effectiveness of the system, preliminary indications we've gotten from students show that it is effective. It is quality education, but it's not easy," Dickson said. "It is not for every student, but for those who are motivated it can really make a difference in their education.

The efforts of a great many people went into making satellite education a reality in Illinois. Western Illinois University's College of Education initiated the first steps. Realizing that you have to learn to crawl before you can walk, WIU staff members carefully studied the available options for addressing educational inequity and finally settled upon satellite-delivered instruction.

WIU, faced with a budget crunch of its own, purchased uplink equipment through the reallocation of University funds. WIU and the Illinois State Board of Education then joined forces to secure federal funding for the project under the U.S. Department of Education's "STAR Schools Program." A $918,326 federal grant allowed WIU and the ISBE to install 52 downlink sites at rural schools and Educational Service Centers around the state during the 1988-89 school year. Twenty-three sites were added under a $526,710 federal grant for the 1989-90 academic year.

The Illinois General Assembly also helped make satellite education a reality. Rep. Bill Edley, D-Macomb, introduced a bill changing the school code to allow the ISBE to offer school credit for classes taken via satellite. Edley, a staunch supporter of the TI—IN project, took the initiative in proposing Illinois legislation in support of the project.

Senate Bill 281, a Board of Governors of State Colleges and Universities appropriation bill, and the Madigan/Rock surcharge proposal brought additional funds, $150,000 and $350,000 respectively, to the project. Sen. Laura Kent Donahue, R-Quincy, sponsored House Bill 592 in the Senate which proposed grants to schools involved in the project. While the funds were not approved in Fiscal Year 1990, a similar proposal is expected to be introduced in Fiscal Year 1991.

"The TI-IN System through Western and ISBE provides an opportunity for students in rural schools to take advanced courses they would not otherwise have available," said Rep. Edley.

"It is an expansion of curriculum in an affordable way," said Sen. Donahue. "It will help keep the rural districts viable."

More than 100 school districts or Educational Service Centers sent applications for the federally-funded downlink slots. Districts funded had high concentrations of Chapter 1 or educationally disadvantaged students.

"Many districts which did not qualify under the guidelines for federal funding have purchased downlink equipment and joined the network," Dickson notes. "A district can join the network for approximately $9,000. Each district must also pay an annual maintenance fee and student tuition fees each semester."

Among the first districts to buy into the network were Flora Community Unit School District No. 35, Buda Western District No. 306 at Sheffield, Warsaw Community Unit District No 316, the Arlington Heights Educational Cooperative, Toluca Community Unit District No. 2, Midcounty Community Unit District No. 4, Seneca Community Unit district No. 160, the Serena school district and Rock Island School District No. 41.

The larger the network the better the programming, Dickson notes. Student enrichment programming originating from Western Illinois University includes a math/science career exploration program entitled "Career Visions" and a program focusing on French culture produced in conjunction with the French government called "Salute France."

In addition to student enrichment programs, the network provides more than 400 hours of teacher training and staff in-service programming. APPLES Magazine, for example, is a monthly program featuring state-of-the-art information on early childhood programing produced at WIU and broadcast via the WIU/ISBE satellite network.

"Many school districts cannot afford travel and substitute teacher expenses involved in providing training opportunities for their staffs. This is one way for teachers to stay close to home and receive expert training," said Project APPLES Coordinator Bonnie Smith-Dickson.

Students and teachers are not the only ones to benefit from the network, however. Two programs broadcast from WIU in December and January reached out to communities.

In December, WIU joined efforts with four other state agencies to present "Paying for College," a statewide program on financial aid which focused on the types of aid available and allowed individuals to call in specific questions they had about the financial aid process.

On Jan. 27, WIU broadcast the Illinois Music Educators Association's all-State Conference Final Concerts, featuring the All-State and All-State Honors band, choirs and orchestras live from the Peoria Civic Center. Another first for the fledgling network, it gives a tiny glimpse of the network's potential usage, Dickson notes.

"This is the start of a new decade of educational delivery. It brings the world in partnership with Western and we are geared up to accept the challenge. Programming possibilities are limitless," Dickson said.

Courtesy Photo

Jean-Noel Rey, right, the French deputy cultural attache from French Cultural Services in Chicago, serves as host of the "Salut La France" program broadcast via the Western Illinois University-Illinois State Board of Education Satellite Education Network. "Salut La France" is a student enrichment program, designed as a supplement to classroom instruction in French. Pictured during a recent broadcast, the deputy cultural attache spoke with Dr. Richard Altman, a professor at the University of Iowa and director of the Project for International Communication Services. The program is a cooperative effort between the French government, WIU the TI-IN United Star Network.

DEBI SUE EDMUND

Satellite TV connects rural classrooms nationwide

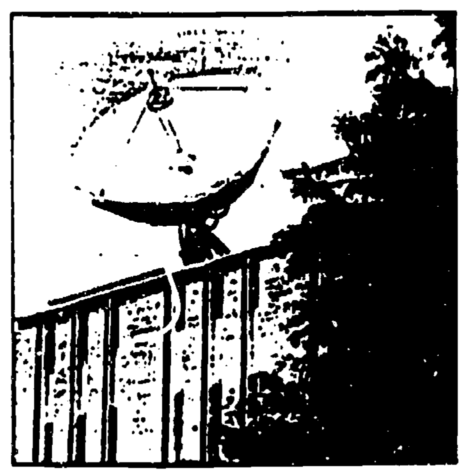
High school senior Christine Gordon listens attentively while Mrs. Riley, her psychology teacher, poses a question about the reliability of testing methods. Christine thinks for a moment, then ventures an answer. Mrs. Riley encourages her to elaborate. A typical American high school scene, right? Hardly. Christine is sitting in a classroom at Illini Central High School in Mason City. Besides the six juniors and seniors in the room with her, Christine's classmates include students from as far away as Happy Camp, Calif. Mrs. Riley is in San Antonio, Texas; she is also on television.

The Illini Central High School students are participants in the Illinois STAR School Program, Illinois' first statewide satellite education network. The program, now serving about 300 students around the state, went on-line last April. It is a joint venture of the Illinois State Board of Education (ISBE) and Western Illinois University in Macomb. The project in Illinois is part of the TI-IN United STAR Network, a federal grant program which required that partnerships be formed between local elementary and secondary schools, institutions of higher education and private business. STAR stands for Satellite Transmitted Academic Resources.

The STAR Schools Program enables students and faculty to receive courses and enrichment programs not otherwise available to them, according to Richard Haney, assistant superintendent for rural education at ISBE. Courses offered via satellite this fall included advanced math and science, several foreign languages and other courses that would attract only a small number of students in one school.

The live classes use an interactive two-way audio, one-way video satellite-transmitted system, which allows students to talk directly with teachers by phone. Students take tests and do homework assignments, sending them to the teachers by mail. An electronic writing tablet that comes with the satellite package even makes it possible for students to "step up to the blackboard." Whatever the student writes on the graphics tablet can be transmitted to the teacher, who can show other students what was written. Teachers certified in other subjects are present in the classroom to administer tests and provide support to the televised teacher.

Students also have access to enrichment programs. Programs being produced by WIU in their studios include a career and guidance program focusing on math and science, a live concert series featuring Illinois high school bands and a program on French culture filmed on location and presented entirely in French.



Western Illinois University

WIU and ISBE's partners in the STAR Schools Program include the University of Alabama, California State University at Chico, Mississippi State University, the North Carolina Department of Public Instruction, TI-IN Network of Texas, Educational Service Center Region 20 in San Antonio and the Texas Education Agency. Participating schools in Illinois have access to supplemental courses offered by each of these institutions as well as those broadcast by WIU and the TI-IN Network in Texas (a private corporation). WIU can also produce programming that is Illinois-specific, such as a course on the state's history, if schools request it. "We have Illinois money producing Illinois programming for Illinois schools," says Michael Dickson, executive director of the WIU-ISBE Satellite Education Network, which coordinates the STAR Schools Program in Illinois.

The U.S. Department of Education awarded a $918,326 grant for the 1988-89 school year to ISBE and WIU to establish 52 satellite receiving sites at rural schools and educational service centers. Second-year federal funding of $526,710 allowed 23 additional sites in Illinois to join the network for the 1989-90 school year. Most of the money was used for purchase of the satellite equipment installed at these sites. Last October, the Board of Governors authorized WIU to reallocate $840,000 from its existing budget over a five-year period to cover construction and installation of its satellite uplink facility.

The Illinois General Assembly provided additional help last spring. Besides approving H.B. 1227, sponsored by Rep. Bill Edley (D-95, Macomb), to change the school code to allow ISBE to offer credit for classes taken via the interactive satellite sys-

tem. WIU received a half million dollars for the TI-IN project ($150,000 in general revenue funds via S.B. 281 for programming and $350,000 via the Madigan/Rock temporary income tax increase for updating studio and broadcasting equipment). But Gov. James R. Thompson vetoed a line item in another bill (H.B. 592) that would have provided $216,000 in grants to bring new districts into the network. Edley, who plans to introduce a similar bill this year, says, "I think some of the reticence was due to those waiting to see how well the system works."

The original 52 sites selected for the grant program were chosen from more than 100 applicants. Those 52 qualified as rural, remote school districts with fewer than 700 students and a relatively high concentration of Chapter 1 (educationally disadvantaged) students from low-income families. Federal grants cover only one year for qualifying districts.

Haney says TI-IN offers a cost-effective way to bring advanced courses to rural high school students. "Our prime goal is to offer courses that we could not provide any other way. We think this is an excellent opportunity for rural schools to be competitive with their larger neighbors."

Another important question: Will the small school districts be able to afford the continuing cost?

Districts that did not meet the guidelines for federal funding may also buy into the network by purchasing the satellite equipment and paid programming themselves. Currently, nine have done so, Haney says. "Our network will handle as many schools as would like to belong. The more schools we have, the better the programming we can give." School districts wanting to join the network can spread the cost over a seven-year period through a loan program offered by the Illinois Development Finance Authority.

Dickson and Haney both acknowledge that the program has its problems and its critics. The two biggest problems have involved scheduling and the academic preparation of some of the students, Dickson says. Since class periods do not start and end at the same times around the state, schools have had to be flexible. Because of the limited curriculum in a lot of these schools, some students, for instance, may not have taken the math courses they would need before taking calculus.

Some critics have expressed concern that the system would replace local teachers with television sets, but Haney denies this. "There is not, nor will there ever be, a teacher replaced by this program," he says. "These are courses that small rural schools cannot offer in their curriculum because of the number of students involved." Others have feared that the technology involved would prove intimidating. "Frankly, we've had a bigger problem with the adults than the students," Dickson says. "Their training with things like Nintendo, PAC-Man and computer games lends itself to this sort of thing. Rather than being intimidated, we find that the students are really turned on by it."

The program had to overcome traditional competitiveness in Illinois' education hierarchy. "Western Illinois University and the State Board of Education started as competitors," Haney says, "But we quickly determined that the best chance we had to put together a comprehensive program was to unite — not only Western and the Illinois State Board of Education — but with other partners around the country." The STAR School Program also competed with other technologies, according to Rep. Edley. Other options were investigated, including a fiber-optic cable program backed by the Illinois Farm Bureau and a two-way audio, two-way video sytem, but the TI-IN system was found to be the most flexible and cost-effective, he says.

Another important question: Will the small school districts be able to afford the continuing cost? After the federal grants expire, each district's costs will include an annual $3,650 fee, which covers the maintenance agreement for the equipment, tape back-up, access to enrichment courses and staff development programs, and an 800 number to call the teachers about special problems. An additional basic programming fee of roughly $250 per participating student per semester is assessed as tuition and paid by the district.

In Mason City, students and staff are enthusiastic about the program. "The one negative aspect so far is the cost involved," high school principal David Russell says. "But it's a trade-off. It's going to cost you some bucks, but we are offering five courses this year that we could not have offered otherwise." In the fall, 24 of the high school's 265 students were enrolled in the televised courses, and 25 are signed up for spring. These courses include astronomy, French, art history and appreciation, psychology and marine science.

Amy Hakman, a science and chemistry teacher who serves as facilitator for the psychology class in Mason City, likes the program. "If a student is absent for a day, we can tape the class for him. And the teachers are very charismatic. They present their material well." Matt Trabue, a junior taking the psychology course, says the class has captured his interest so much that he plans to pursue psychology in college. "At first it [the call-in function] was weird. Nobody wanted to ask any questions," he says. "But now, we use it all the time."

"We are very encouraged," Haney says. "The program is much farther along than we expected it to be at this time. Out of our 75 sites, we may have one or two that we will want to move at the end of the year because of [under]utilization. Two out of 75 is outstanding."

Not simply for students, the interactive television offers teacher training. The Illinois teachers interact live with nationally known consultants and other teachers in about 30 states. Dickson says, "We've had very heavy use of teacher inservice training . . . . used extensively for staff development in the areas of math, science and foreign languages. I think the biggest thing the teachers like about the system is that it provides them with educational opportunities themselves."☐

Debi Sue Edmund is a Springfield freelance writer and editor.

TI-IN UNITED STAR NETWORK.

METROPOLIS, IL
PLANET
W. 5,700

JUNE 28 1989

Report from the House

By State Representative David Phelps

New Possibilities for Illinois Education

With the advent of the new TI-IN satellite educational network, smaller Illinois schools will be able to greatly improve educational opportunities. Satellite technology has enabled the State of Illinois to ensure more uniform education by "beaming" courses all over the state. I am currently sponsoring legislation which will fund this project, because it is an effective way to help children in smaller school districts compete with children in larger ones.

This program is modeled after the federal STAR Schools program which assists districts in purchasing equipment and programming necessary for participation in the interactive satellite education network. The federal network, centered at Western Illinois University, is scheduled to be fully operational this month. It will transmit live instructional programs to schools and educational centers throughout the state and the nation.

This is not just T.V. Through this system students can interact with the teacher, who will be at Western Illinois University. A student in Eldorado High School (or any other participating school) can ask questions, turn in homework assignments and respond to questions — all through the satellite link. We plan to expand the list of schools with access to this program as more money becomes available.

There will be a teacher in the room with the students at all times — this is required by law — the difference is the teacher will not have to be certified in the advanced subject material. In addition, students will be getting education not otherwise possible in many rural schools. Students anywhere in southern Illinois will get classes in advanced math and sciences, and foreign languages just as easily as if they lived in suburban Chicago.

Some taxpayers may fear the cost of this program. But they can rest assured this program will actually reduce the cost of a better education. In the fall of 1993, the college entrance requirements in the State of Illinois will became significantly more difficult. This means the educational standards will increase dramatically, as well as the cost of meeting those standards. Adding a teacher to a school's payroll may break the school board's budget. Demand for teachers certified in foreign languages and advanced math and sciences is expected to greatly exceed supply. The result could be disastrous for downstate schools.

Federal funding, almost $1 million, will be used to provide downlink equipment to 52 school districts and educational service centers throughout the state this year, while new funding will be provided next year for 25 additional sites. Equipment required for this program consists of a television viewer, a satellite dish, and integrated equipment which permits students to interact with the instructor through verbal and written communication. Expansion of this program to all Illinois school districts will take time, but will cut the cost of education, and at the same time improve it.

HARDIN, IL
CALHOUN HERALD
W. 2,300

MAR 16 1989

TI-IN UNITED STAR NETWORK.

Satellite TV Network at C.H.S.

Calhoun High School has received the satellite dish and cable for the school's link-up to an instructional satellite TV network.

The program will enable students to take advanced courses in math and science and a wide variety of foreign languages. These classes will begin in the fall.

Students and teachers can use a special cordless phone to ask questions of the TV teacher who may be thousands of miles away. Course material and tests can also be sent by satellite to a printer at each school.

Principal erry Strauch expects the TV monitor, video cassette recorder and phone hook-up to be delivered in the next week or so.

The classes offered in the instructional TV program will be supplemental courses and will help provide the minimum course requirements that will be required in 1993 for entrance into public universities.

Certified teachers will have to be present in the classroom during the long-distance teaching. The in-service instruction for the teachers over the satellite network is expected to begin in April.

Calhoun High School was one of 52 schools in the state to qualify for this program. A federal grant enabled the State Board and Western Illinois University to bring the satellite TV hook to rural school districts in Illinois.

Districts had to have at least 17 percent economically disadvantaged (Title I) students and to be relatively small and be remote from urban areas, to qualify for the program.

Rural schools to broaden curriculum with satellite link

By RAY LONG
and MIKE BAILEY
of the Journal Star

CHICAGO TRIBUNE
January 11,1989

"This is the kind of innovative technology that is necessary to preserve a small school experience, yet provide a broad educational opportunity."

Gov. James R. Thompson

SPRINGFIELD — Need a physics or calculus teacher but can't find one who will work at your small, isolated school district in the cornfields of west central Illinois?

Well, now you can just "beam" one down from anywhere in the United States thanks to a $920,000 federal grant that will be used to bring advanced math, science and language classes via satellite to economically and geographically disadvantaged rural schools in Illinois.

No, it's not "Star Trek." It is the TI-IN United Star Network, a San Antonio, Texas-based, 16-state cooperative that will bring instructional programming, or "distance learning," to 64 Illinois school districts, 13 of them in central Illinois, by way of a satellite dish and a television set.

At a press conference in Springfield Tuesday, state school officials announced Illinois' $920,000 share of the $5.6 million TI-IN received recently from the U.S. Department of Education's "Star Schools" program. Illinois will become only the second state to offer the educational network on a statewide basis.

The money will be funneled through Western Illinois University, which will pick up, produce and transmit the live broadcasts from throughout the United States to the participating schools. The broadcasts will allow students to see, hear and talk with their instructors via two-way audio; an electronic writing tablet also will aid in student-teacher interaction.

"Every schoolchild in the state of Illinois deserves the best education we can provide," Gov. James R. Thompson said in announcing the program Tuesday. "Unfortunately, there are some rural communities that do not have the equipment, financing nor expertise to provide full educational opportunities.

"This is the kind of innovative technology that is necessary to preserve a small school experience, yet provide a broad educational opportunity."

Central and western Illinois school districts that will link themselves up with TI-IN include the Pekin Area Vocational Career Center, the San Jose-Easton-Mason City consolidated school district, Industry District 165, Avon Unit District 176, Astoria Unit District 1, Havana Unit District 126, Yorkwood District 225, Williamsfield District 210, LaSalle-Peru Area Vocational Career Center, Monmouth District 38, Manito-Forman, Oneida, and Bath-Balyki.

To qualify, the schools had to be "educationally underserved, remote, rural," with less than 700 students at the high school level. At least 17 percent of students had to qualify for Chapter 1 programs for disadvantaged students.

The only cost to the participating schools is for installing telephone lines for two-way communication.

Superintendents at those schools were generally enthusiastic about their inclusion in the satellite networking program Tuesday, but they didn't exactly view it as a miracle worker that will keep consolidation advocates at bay or propel their students on to college.

"I really hope that the machine is not smarter than the people it has come to serve," said Industry Superintendent Chuck Waggoner. "I think it's just going to augment our program. I don't think it's going to be a savior for rural schools."

Industry's experience is pretty typical for a small school.

Six years ago, when administrators were searching for a high school science teacher, Waggoner received just two applications. Physics and calculus has to be alternated every year. There is no program for gifted students. The school offers only one foreign language.

The TI-IN program will change all that.

For Mason City High School Principal David Russell, whose district is consolidating with Easton and San Jose next fall, the satellite network could mean opening a door to colleges and careers that have previously been denied some students.

It will mean a second and probably third foreign language can be taught, that probability, statistics and calculus classes can become part of the math curriculum, and that electives such as marine science and astronomy can be offered to students who could only daydream about them before.

For both school districts, turning on the TV set in the classroom also will provide important teacher in-service programs for self-improvement, one of the elements of satellite networking that state Superintendent Ted Sanders is most excited about.

Thanks to TI-IN, the worlds of area students will be expanded to include live instruction from WIU, the University of Alabama at Tuscaloosa, California State University, Mississippi State University and the North Carolina Department of Public Instruction in Raleigh.

BENTON, IL
NEWS
D. 5,940

BEST COPY AVAILABLE

TI-IN UNITED STAR NETWORK

SEP 13 19[illegible]

LINKED UP

BCHS among satellite schools

By Dave Schmid

A new satellite television receiver can be seen by people driving past Benton Consolidated High School, 511 East Main St.

It is the most visible sign of the TI-IN United Star Network, a program of televised instruction begun this fall at the high school.

The program is funded by a $10,000 grant from the U.S. Department of Education. The funding was awarded because of the high percentage of students attending the high school who qualify for Chapter 1, a program for students from low-income families.

BCHS was one of 23 new sites in Illinois chosen for the total $526,710 grant, which is now in its second year.

Media Supervisor Leon Jourdan directs the program from the school's library. He said students may still enroll in this year's course offerings, which include a number of science and mathematics courses, as well as some foreign languages — such as Japanese — which the high school does not teach.

The Japanese course has already drawn the interest of a [illegible]ber of students

Spanish teacher Pat Story said the televised classes would be a "really good supplement" to the classes she teaches at the school.

The classes are interactive — allowing students and teachers to talk with each other through a "talkback" telephone.

Students enrolled in courses taken for credit must do homework and take exams just like every other course taught at the school. A certified teacher must be on hand to monitor every televised class session.

In addition, many courses — as well as adult enrichment and teacher in-service classes — may be taken without school credit.

Superintendent John O'Dell said that as many as 200 students may enroll in one of the televised classes, which are broadcast to subscribing institutions across the nation.

Jourdan admits that the televised classes occasionally are taught at times which conflict with the high school's schedule. But he said part of the system is a videocassette recorder so that courses may be copied for viewing later.

School officials met Tuesday to discuss ways to inform students and the general public about the new system. They said they hope more people will use the system once they become familiar with it.

"It's still a matter of getting organized," Jourdan said.

Photo by Dave Schmid

Leon Jourdan, media supervisor at Benton Consolidated High School, views one of the programs offered by the TI-IN United Star Network, an educational station broadcast via satellite to schools around the country. Jourdan holds one of the cellular telephones used to converse with course instructors for the station. The high school recently received a $10,000 federal grant to install the system.

FLORA, IL
ADVOCATE-PRESS
D. 3,795

JUN 14 1990

TI-IN
UNITED STAR
NETWORK.

Comments from our Readers

TI-IN rates explained

Dear Jack,

I am writing in reference to the Tuesday, June 12, 1990, article regarding the satellite TV program at Flora High School. First of all, there was included some misinformation that needs to be corrected.

TI-IN, the educational network with whom Flora School District is affiliated for satellite programming, did not raise prices for the 1990-91 school year. They did, in fact, lower their rates. For example, last year's subscription fee, which includes equipment warranty, toll-free technical assistance from engineers, equipment lease and maintenance, insurance, upgrades, free videotape backup, 800 direct access telephone/on the air talkback capabilities, administrative support, facilitator training, and off-air tutoring was $5,950. The 1990-91 fee will be $3600. Last year's staff development (instructional programs for adults) fee was $2400, but next year's fee will be $1000. Last year there also was a first-time user equipment lease fee of $3250. This year this fee is not assessed. The tuition fees of $290 per semester per student remained the same. This averages out to approximately $3.25 per lesson.

In fairness to the TI-IN network, it's important to remember that, last year, TI-IN did not charge Flora School District any tuition fees for the nine students in Japanese I (value $5220). Although we did not qualify for the grant, we were treated as though we were a grant participant. The network also refunded the $2400 which the district paid for the staff development programs. They voided the standard $550 equipment delivery and set-up fee. This is a total of $8210 the district did not have to pay. In addition, TI-IN, with Western Illinois University, provided two tuition scholarships (value $530), one for an Advanced Placement Government class and the other for a French II class. Flora School District was featured as an exemplary program in their national newsletter, which is mailed to participating school districts in 28 states. Ron Davies, TI-IN's Utilization Specialist, has worked coooperatively with the district to be sure we have program guides for local industries and to be on hand for training, recognition banquets, or whatever else we have required.

About this time last year, 17 generous benefactors (8 couples and one individual), and the Flora Industrial Commission, donated the funds, through the Flora Academic Foundation, to make satellite education a reality in Flora. Their donations paid for the equipment, the phone installation, the subscription fee and first-time user equipment lease, a second hookup to free the research room for other student's use, and the staff development fee, which was refunded. The school district paid the monthly phone charges. The students each paid $20 toward the cost of their textbooks. The facilitators, Dale Wagner and Nancy Clark, volunteered part of their school day to oversee the three classes. Mrs. Yoko Yamada, a Flora resident who is Japanese, volunteered her time every day to assist our students and their facilitator to write and speak her language and to understand her culture. A Japanese Club was voluntarily begun.

Because the program was so successful, 16 students now want to take Japanese I and 8 of the original 9 want to continue with Japanese II. One of these 8 is Kerri King, who has the top-ranking grade point average nationally in last year's course. Interestingly enough, the AP Government student, Danny Brown, was ranked third in the nation. When all the tuition costs are added up, the total amount is expensive, especially when compared to last year's costs, $8740 of which were provided by the TI-IN Network.

The Flora Board of Education has postponed their decision regarding long distance learning for a month during which grant funds and cooperative partnerships will be requested from several sources. I hope that adequate funds can be found to continue this worthwhile innovative program that makes the Flora School District unique and a step ahead of other communities. It is especially important to provide the second year of Japanese for the 8 students requesting it so that the two year foreign language requirement can be met. I applaud the Flora School Board, the Flora Academic Foundation, and the benefactors for their vision in opening Flora School District to the world.

Sincerely,
Linda Brissenden

HARRISBURG, IL
REGISTER
D. 6,891

AUG 15 1990

Personnel changes keep Unit 3 busy with school days near

By STEPHANIE WISE
Features Editor

The Harrisburg Unit 3 School Board met in regular session last night to make several personnel changes.

Teachers from within the district that will have new positions this year include: Miriam Kamp, from Itinerant Kindergarten to Chapter I Kindergarten at West Side School; and Patricia Thomas, from teachers aide at West Side to first grade teacher at East Side School.

Positions also being filled include: Kay Haege, special education at West Side; Thomas Kavelman, special education at Malan Junior High; Nancy Ammon, half time kindergarten at West Side; Ronda Ego, At Risk Program at West Side; and Beth Simpson, special education aide at West Side.

At this time, the board took no action in filling a teacher's aide position at Malan Junior High.

The board also assigned auto shop duties to Ray Neese, ag vocational teacher at the high school. Coaching assignments were also made with four positions yet unfilled.

Resignations were accepted from Beverly James, At Risk program; Jeff Roper, freshman football and basketball coach; and Greg Langley, [illegible] football and head wrestling coach.

In other business, the board:

-had a discussion on the upcoming budget. After going over some of the usual totals, Superintendent Randolph Tinder stressed that the board remember that salary and benefit increases aren't in the budget and would have to be added later.

Tinder did note that this was the first time in 15 years that there are no outstanding deficits on the budget even though the increases aren't on it. A discussion of what it would take to get off the State's Financial Watch List was also discussed.

-adopted handbooks for East and West Side schools and the high school. The junior high handbook will be ready before the next board meeting.

-adopted athletic policies for the high school. Tinder felt that both the policies and the handbooks were important and should be adopted each year to keep members familiar with those policies and to keep them updated.

-heard Tinder request consideration of extending summer hours into the school year. Some personnel in the unit office would like to come to work at 7:30 a.m. and leave at 3:45 p.m. Tinder noted that it would help teachers get info and other things from the office before classes. The board approved the idea without taking a vote on it.

-discussed bidding out the trash contract. Several calls have come in from trash haulers about bidding for the job. Tinder was directed by the board to come up with a set of specifications and present them at the next meeting.

-gave Tinder approval to make an offer on a lot in Southwest Acres for the Building Trades house to be built.

-approved the bid to Bunny Bread Bakery, Anna for just over $6,200, for the 1990-91 school year.

-approved renewal of the TI-IN Network for 1990-91. This is the satellite network [illegible] for classes and teacher in-services.

-approved the increase in substitute teachers pay. State law requires that substitute teachers pay into the teachers retirement fund now. The board will pick up that eight percent they have to pay from their salaries and still pay substitutes $45 a day.

-formally agreed to give Tinder the go-ahead to have Unit 3 named in a lawsuit with close to 40 other school districts on funding of education in Illinois.

-took a position to urge the state to go ahead with a proposal on four lanes for Ill. 13.

The Unit 3 Board will meet in regular session on Tuesday, Sept. 11 at 7 p.m. at the Unit 3 offices.

TI-IN
UNITED STAR
NETWORK.

LA HARPE, IL
QUILL
W. 1,310

SEP 4 1990

TI-IN
UNITED STAR
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TI-IN U ited Star Network

Twenty-eight Illinois high school students have been named recipients of TI-IN United Star Network–Illinois Star School scholarships for Fall 1990.

"The Star Scholars Program, which was initiated in Spring 1990, is an attempt to remove a small portion of the fiscal barrier between students and opportunity," said Mike Dickson, director of the TI-IN United Star Network--Illinois project headquartered in the College of Education at Western Illinois University. "We are again pleased to be able to recognize outstanding students from Illinois school districts. They are exemplary students who represent their respective shcools well," said Dickson.

Scholarship recipients are among approximately 400 Illinois high school students at more than 100 downlink sites taking courses via the WIU/Illinois State Board of Education (ISBE) Satellite Educational Network. Designed to give rural schools a cost-effective means of providing students with advanced academic and student enrichment courses, the statewide system was instituted in April 1989. Courses offered through the network include advanced math and sciences, foreign languages and a variety of other subjects which typically have lower enrollments.

Recipients, by community unit school district or Educational Service Center (ESC), include:

Dallas City CUSD 336: Candi Rockel, Japanese I.

La Harpe CUSD 335: Robin Farquhar, psychology.

Roseville CUSD 200: Amy Gerald, German II.

Sciota Northwest CUSD 175: Krista Hansen, German I.

SHAWNEETOWN, IL
GALLATIN DEMOCRAT
W. 1,900

OCT 20 1988

TI-IN UNITED STAR NETWORK.

Chalkboard Column

From the Regional Superintendent's Office

Long Distance Learning

The Star Schools Program, a U. S. Department of Education initiative, is coming to Illinois. The program is designed to expand educational opportunities to elementary and secondary students in isolated, rural school districts through the use of high technology including satellite receivers, talkback units and interactive graphics tablets.

In the Spring of 1988, the United States Department of Education issued a directive calling for proposals to deliver direct strudent instruction to elementary and secondary students in remote and rural schools across the United States. Western Illinois University (WIU), in cooperation with the Illinois State Board of Education (ISBE) submitted a proposal to provide the students of Illinois equal access to quality education regardless of location. WIU and ISBE formed a partnership with the TI-IN United Star Network as a way to address this initiative. TI-IN is a Texas-based project which currently provides innovative cost-effective instruction to students residing in remote areas through satellite technology.

The proposal calls for demonstration sties to be established across Illinois where receive sites or downlinks will be placed in school districts and Educational Service Centers. These locations will serve to demonstraate the technology through delivering math, science, and foreign language classes--especially courses such as calculus, physics, or particular languages that have been unavailable to some students because of low demand, limited resources or lack of qualified staff. Teacher in-service programs are also an area of delivery through this medium.

Illinois will receive a total of 52 downlinks in the first year of funding. Schools can expect to receive information or apply for this exciting progress in the near future. Egyptian ESC will be in support of area schools as they seek to tap this new instructional delivery system.

TI-IN
UNITED STAR
NETWORK.

NOKOMIS, IL
FREE PRESS-PROGRESS
W. 3,000

MAR 21 1990

Golitko Win Scholarship In Star Scholars Program

Thirty-nine Illinois high school students have been named recipients of TI-IN United Star Network-Illinois Star School scholarships for spring 1990.

"The Star Scholars program is an attempt to remove a small portion of the fiscal barrier between students and opportunity", said Mike Dickson, director of TI-IN United Star Network-Illinois project headquartered at Western Illinois University. "More importantly, it is our attempt to recognize the commitment of not just the student or Star Scholar, but the school as a whole. Without the efforts and cooperation of school administrators, school boards, teachers, facilitators, guidance counselors and parents, student participation would be impossible".

The recipients are among approximately 400 Illinois high schools at 91 downlink sites taking courses via the WIU-Illinois State Board of Education (ISEE) Satellite Educational Network. Designed to give rural schools a cost-effective means of providing students with advanced academic and student enrichment courses, the statewide system was instituted in April 1989 when 52 of Illinois' downlink sites simultaneously went on-line for the first broadcast from WIU. Courses offered through the network include advanced math and sciences, foreign languages and a variety of others which typically have lower enrollments and funding difficulties in rural school curriculums, according to Dickson.

"We are pleased to be able to recognize outstanding students from Illinois school districts. They are exemplary students who represent their respective schools well", said Dickson.

A scholarship recipient from this area is Charlie Golitko, elementary analysis, from Witt Unit District No. 66.

TI-IN UNITED STAR NETWORK.

TI-IN UNITED STAR NETWORK; THE AWARD TO STAR SCHOOLS RECIPIENT SITES

WHAT IS TI-IN UNITED STAR NETWORK?

TI-IN United Star Network is a newly formed, multi-state partnership between public education institutions, state agencies and private enterprise. The eight partners include: The University of Alabama at Tuscaloosa, California State University at Chico, Western Illinois University at Macomb, Illinois State Board of Education, Mississippi State University at Starkville, North Carolina Department of Public Instruction at Raleigh, Texas Education Agency, Region 20 Education Service Center in San Antonio, and TI-IN Network, Inc. TI-IN Network, Inc., is the partner experienced in delivering programming and installing state-of-the-art satellite technology. Currently, TI-IN Network, Inc., has 537 sites across 31 states. The other 7 partners bring expertise in education delivery by providing exemplary programming that contribute to a nationwide resource sharing network.

The primary purpose of this partnership is to provide live, interactive satellite-based instructional programs. This direct student instruction and teacher training is targeted to meet academic needs in Chapter 1 and Bureau of Indian Affair schools for instruction in the critical subjects of mathematics, foreign languages and science. TI-IN United Star Network is able to meet these objectives as a result of a $5.6 million award from the $18 million appropriated Star Schools Program, U.S. Department of Education. In addition to expanding programming, 244 Chapter 1 and Indian schools are being equipped with satellite receive equipment.

WHAT IS THE STAR SCHOOLS PROGRAM?

The Star Schools Program is designed to foster multi-state partnerships for the purpose of employing telecommunications to serve a "significant number of Chapter 1 and/or Indian schools." The Program is funded by the U.S. Congress and administered by the United States Department of Education. A total of $18 million was appropriated for the first year of operation; the appropriation for the second year is approximately $14.3 million. The Program was authorized by Pub. L. 100-202 (See Robert T. Stafford Elementary and Secondary Education Improvement Act, S. 373, 133 Congressional Record 517046, December, 1987).

Proposals for Star funded demonstration projects were solicited by the U.S. Department of Education in Spring, 1988. Sixty-eight proposals were read and rated by peer reviewers who are experts in the field of education and new technology. Only, the 4 top rated grants were awarded funds for the first year of a two-year project. TI-IN U.S. Network was awarded $5.6 million. TI-IN plans to request approximately $4.7 million under the second year continuation proposal.

WHAT ARE THE OTHER STAR SCHOOLS PROJECTS?

Along with TI-IN U.S. Network, three other organizations received Star Schools funding. These include the following: 1) Southern Educational Regional Consortium, Inc. (SERCI), 2) The Midlands Consortium; and 3) Technical Education Resource Center (TERC).

SERCI is a consortium formed from members of the Public Broadcasting System located in 14 sates. This organization was awarded $5.6 to deliver via satellite a total of 9 direct student courses and teacher training programs.

The Midlands Consortium is based at Oklahoma State University (OSU). Like TI-IN Network, Inc., OSU has a history of successfully implementing satellite instructional programming. They plan to install new satellite sites in 4 states and develop instruction in French, Spanish, American Government and offer teacher training.

TERC is an interactive, computer-based instructional program in math and science. TERC is based in Cambridge, Massachusetts. This programming is designed to be supplementary to on-going instruction in these subjects.

WHAT DO STAR SCHOOLS RECIPIENTS RECEIVE FROM TI-IN UNITED STAR NETWORK?

As a recipient under TI-IN U.S. Network's demonstration project, a school is asked to make a two year commitment to participate in the instructional programming. In turn, they receive at no cost the equipment necessary to receive the instructional programming that is transmitted by satellite. All programs that are developed under Star Schools funds are available at little or no cost to those equipped.[1] In addition, all sites receive for two years (400 hours per year) the existing TI-IN Network, Inc., staff development training. Overall, this gift to the school is equal to over $17,000 in hardware and programming.

HOW ARE SCHOOLS SELECTED FOR INCLUSION IN TI-IN U.S. NETWORK?

Several criteria were established by the partnership in regard to school/site selection. First, schools were required to have a significant percent of students who are eligible to or, currently participate in the Chapter 1 program. Second, Bureau of Indian Affairs schools were included. Third, schools who are geographically remote or isolated were given preference. Each partner is responsible for identifying school sites. In general, the state agencies in each of 6 partner states have taken the lead role in site selection.

WILL PARTICIPATION COST THE SCHOOL ANYTHING IN THE FIRST YEAR?

Yes, there are secondary costs associated with participating in this demonstration project. First, each school is asked to install a telephone line (for toll-free) communications between teachers/students. In addition, a person must be appointed to monitor both the technology and the student use of the programming. Known as the site facilitator, this person takes attendance, answers questions, duplicates materials, and monitors test taking. Other miscellaneous costs include, duplication and postage costs associated with homework/tests; and laboratory or materials fees when required.

As a Star School participant you have access to all programming delivered by TI-IN Network. A regular student fee is required for those students who enroll in course offerings that are over and beyond the ones for Star Schools (TI-IN United Star Network).

WHAT ARE THE RESPONSIBILITIES THAT EACH PARTICIPATING SCHOOL WILL BE EXPECTED TO UPHOLD?

1. Install a telephone line for toll-free telephone service between the school and TI-IN United Star Network studios.
2. Provide personnel to monitor equipment operation and student participation.
3. Provide textbooks, audiotapes, computers, laboratory materials required in connection with programming.
4. Provide facilities for the duplication of materials and the mailing of homework/tests to the TI-IN studios.
5. Comply with all copyright laws with respect to programming and in connection therewith, restrict the use of such programming to program participants.
6. Operate the equipment in accordance with the TI-IN Operations Manual.
7. Keep the equipment free from vandalism, tampering, damage or alteration.
8. Keep an up-to-date inventory of all equipment installed under the TI-IN United Star Network.
9. Pay fees if and when required.

HOW QUICKLY WILL STAR SCHOOL SITES BE INSTALLED?

Installations will begin in June and is scheduled to be completed by early September, 1989. The installation includes a visit to survey a school site, the actual installation of the hardware, and testing of the satellite signal. Upon completion, each school will become part of the TI-IN United Star Network.

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[1] The exception to the no cost rule is when laboratory fees and college tuition applies.

TI-IN UNITED STAR NETWORK

DOWNLINK RECIPIENT:

A SUMMARY OF THE AWARD FOR PARTICIPATION IN TI-IN UNITED STAR NETWORK

YEAR TWO: October 1, 1989 - September 30, 1990

OVERVIEW OF NO COST AWARD

Each of the 73 downlink schools (sites) will receive the following satellite hardware and instructional programming.

	Estimated Value
I. INSTALLATION AND ACQUISITION OF SATELLITE RECEIVE EQUIPMENT	**$ 14,855.00**

a. Dual-Band (C & KU) Satellite Antenna (steerable)

b. Audio-video cart

non-proprietary components
Electronic writing pad
20" Monitor
VHS machine
Dot matrix printer
Equipment cabinet

Proprietary components
ACD, MFIU, Cordless handsets
Orderwire phone

c. Installation and testing of hardware

II. NETWORK SERVICES AND END-TO-END SYSTEM WARRANTY	**$ 3,650.00**

- Toll free phone service (tutoring, maintenance, administration)
- Videotape backup
- Publication and mailing
- Equipment and liability
- Network monitor and control, maintenance and warranty

III. TI-IN NETWORK'S STAFF/TEACHER	**$ 2,400.00**

Development training and facilitator training (Fall, Spring and Summer)

IV. ALL STAR FUNDED PROGRAMMING	**N/A**

- Non-credit
- Staff teacher
- Direct instruction

ACTUAL COSTS INCURRED BY DOWNLINK SITES

1.	Installation of telephone line	$ 75.00
2.	Administrative support: • Personnel for on-site facilitator • Cost for duplication materials of handout • Postage (homework/test return)	
3.	Expenses related to course participation: • Audiotapes (foreign languages classes) • Computer (Computer Science) • Laboratory Materials (Physics, Marine Science) • Textbooks	
4.	Fees for enrolling in TI-IN Network, Inc. (Classes not Star School funded)	$240 - $290 per student, per course, per semester

TI-IN UNITED STAR NETWORK.

STAR SCHOOL PROGRAMS
October 1, 1988 - September 29, 1989

	# OF HOURS OFFERED	WHEN OFFERED
UNIVERSITY OF ALABAMA - Tuscaloosa		
1. BioPrep Facilitator Orientation	1 hour	Summer
2. BioPrep Student Orientation	5 hours	Spring
3. BioPrep Teacher Orientation	5 hours	Spring
4. BioPrep Teacher Institute	40 hours	Summer
Hours =	51 hours	
CALIFORNIA STATE UNIVERSITY - Chico		
1. Language and Communication Skills of Bilingual Culture (Graduate College Credit)	45 hours	Spring
2. Staff Development: "The How-To's" (College Credit)	30 hours	Spring
3. Home School Communication with Parents of Exceptional Children (College Credit)	30 hours	Spring
4. Induction for Beginning Teacher Program and Orientation (Program Development)	6 hours	Spring/ Summer
Hours =	111 hours	
REGION 20, EDUCATION SERVICE CENTER - San Antonio		
1. Foreign Language Alternatives Lab	10 hours	Spring
2. Integrated Staff/Student Guidance Counseling Institute (High School)	20 hours	Spring
3. Physical Science (Acquired from Texas Learning Technologies)	175 hours	Summer
4. Algebra II	175 hours	Summer
Hours =	380 hours	
NORTH CAROLINA DEPARTMENT OF PUBLIC INSTRUCTION - Raleigh		
1. Foreign Language in the Elementary School - FLES - (Staff Development Institute)	18 hours	Summer
Hours =	18 hours	
WESTERN ILLINOIS UNIVERSITY - Macomb		
1. Math Careers Enrichment (Junior High School)	7 hours	Spring
2. Science Careers Enrichment (Junior High School)	7 hours	Spring
Hours =	14 hours	

	# OF HOURS OFFERED	WHEN OFFERED
TI-IN NETWORK, INC. - San Antonio		
1. Overview of College Credit Courses for California State University - Chico and Mississippi State University (contracted with Chico)	6 hours	Spring
2. Staff Development (inkind contribution - 250 hours)		Spring/ Summer
Hours =	6 hours	
Total Number of Hours =	580 hours	

TI-IN UNITED STAR NETWORK.

TABLE 4

PROGRAMMING PROPOSED FOR 1989-1990
YEAR 2

	When Offered	# Hours
UNIVERSITY OF ALABAMA		
Direct Student (Credit)		
Anatomy & Physiology	Fall('89)/Spring('90)	175
Japanese	Fall('89)/Spring('90)	175
Staff Inservice		
BioPrep Orientations	Spring('90)	5
BioPrep Teacher Institute	Summer('90)	40
Follow-up to 1989 Teacher Institute	Fall('89)/Spring('90)	24
CALIFORNIA STATE UNIVERSITY - CHICO		
6 College Credit courses for teachers (14 units)	Fall('89)/Spring('90)	210
Partners in Professional Growth: Program of Support for Beginning Teachers	Fall('89)/Spring('90)	46
EDUCATION SERVICE CENTER-REGION 20		
Direct Student (Credit)		
Physical Science	Fall('89)/Spring('90)	175
Spanish III	Fall('89)/Spring('90)	175
French III	Fall('89)/Spring('90)	175
Direct Student (Non-credit)		
Foreign Languages Alternative Lab	Spring('90)	10
Integrated Guidance Program	Fall('89)/Spring('90)	20
MISSISSIPPI STATE UNIVERSITY		
College Credit Courses		
2-3 Math or Science courses (3 units each - 45 hrs. each)	Spring('90)/Summer('90)	101
Inservice Program	Fall	34
NORTH CAROLINA DEPARTMENT OF PUBLIC INSTRUCTION		
Foreign Languages in the Elementary Schools (FLES)	Spring ('90)	18
WESTERN ILLINOIS UNIVERSITY		
Science Careers Enrichment	Fall('89)/Spring('90)	21
Math Careers Enrichment (*Career/Course Guidance Counseling)		
Staff Development for Gifted Talented Children	Spring('90)	7
TI-IN NETWORK *		
Project Related Programming		20
	Total Hours:	1,431

* As an In-Kind contribution, TI-IN will provide over 400 hrs of staff development

TI-IN UNITED STAR NETWORK

TI-IN UNITED STAR NETWORK RECIPIENT SITES 1988 - 1990

STATE	SCHOOL	CITY
ALABAMA	Akron High School	Akron
	Alba High School	Bayou La Batre
	Aliceville High School	Aliceville
	A.L. Johnson High School	Thomaston
	Berry High School	Berry
	Brookwood High School	Brookwood
	Calhoun High School	Letohatchee
	Carrollton High School	Carrollton
	Central High School	Hayneville
	Cherokee County High School	Centre
	Choctaw County High School	Butler
	Dallas County High School	Plantersville
	Demopolis High School	Demopolis
	Dothan High School	Dothan
	Emma Sansom High School	Gadsden
	Etowah High School	Attalla
	Eutaw High School	Eutaw
	Fayette County High School	Fayette
	Fyffe High School	Fyffe
	Gaston High School	Gadsden
	Gordo High School	Gordo
	Greensboro High School East	Greensboro
	Greensboro High School West	Greensboro
	Hale County High School	Moundville
	Hillcrest High School	Tuscaloosa
	Holt High School	Holt
	Hubbertville High School	Fayette
	John Essex High School	Demopolis
	Keith High School	Orrville
	Lamar County High School	Vernon
	Linden High School	Linden
	Litchfield High School	Gadsden
	Livingston High School	Livingston
	Marengo High School	Dixon Mills
	Marion High School	Marion
	Northview High School	Dothan
	Paramount High School	Boligee
	Pickens County High School	Reform
	Ragland High School	Ragland
	Red Bay High School	Red Bay
	Robert C. Hatch High School	Uniontown
	Selma High School	Selma
	Skyline High School	Scottsboro
	South Lamar High School	Millport
	Southside High School	Selma
	St. Clair County High School	Odenville
	Sulligent High School	Sulligent
	Sumter County High School	York
	Sunshine High School	Newbern
	Sweet Water High School	Sweet Water
	The Bevill Center	Gadsden
	Tuscaloosa County High School	Northport
	Valley Head High School	Valley Head

STATE	SCHOOL	CITY
ALABAMA Continued	Wilcox Central High School	Camden
	Woodville High School	Woodville
CALIFORNIA	All Souls School	San Francisco
	Anderson Valley High School	Boonville
	Burney Jr/Sr High School	Burney
	Del Mar High School	San Jose
	Dos Palos High School	Dos Palos
	Gridley High School	Gridley
	Happy Camp High School	Happy Camp
	Herlong High School	Herlong
	Hilmar Jr/Sr High School	Hilmar
	Imperial High School	Imperial
	Modoc High School	Alturas
	Needles High School	Needles
	Pliocene Ridge High School[1]	Pliocene Ridge
	Trona High School	Trona
	Hesperia High School[2]	Hesperia
COLORADO	Ellicot Jr/Sr High School	Calhan
NEW MEXICO	Rocinante High School[3]	Farmington
NEW YORK	Ripley Central School District	Ripley
OREGON	Madras High School	Madras
	Ukiah High School	Ukiah
TENNESSEE	Coffee County School District	Manchester
WASHINGTON	Oakville Jr/Sr High School	Oakville
ILLINOIS	Aldeo High School	Aledo
	Astoria High School	Astoria
	Avon High School	Avon
	Balyki High School	Bath
	Beecher City Jr/Sr High School	Beecher City
	Benton High School	Benton
	Bluffs High School	Bluffs
	Brooklyn Unit School District #188	Lovejoy
	Brown County High School	Mt. Sterling
	Cairo High School	Cairo
	Calhoun High School	Hardin
	Carrollton Community Unit High School	Carrollton
	Central High School (Camp Point CUD #3)	Camp Point
	Christopher Community High School	Christopher
	Cowden-Herrick High Shcool	Cowden

[1] Was orginally Pescadero High School, Pescadero, CA

[2] Was originally Yucca Valley, CA

[3] Was originally Corona, NM

STATE	NAME OF SCHOOL	CITY
ILLINOIS Continued	Dallas City CUD #336	Dallas City
	Dupo High School	Dupo
	Durand High School	Durand
	Education Service Center #16	Belleville
	Education Service Center #8	Sterling
	Education Service Center #13	Rantoul
	Forman CUSD #124	Manito
	Gorham High School	Gorham
	Greenfield High School	Greenfield
	Greenview High School	Greenview
	Griggsville High School	Griggsville
	Hamilton CUD #10 Schools	McLeansboro
	Hardin County K-12 School	Elizabethtown
	Harrisburg High School	Harrisburg
	Havana High School	Havana
	Highland Community College	Freeport
	Illini Central High School	Mason City
	Industry CUSD #165	Industry
	Iroquois Area Regional Delivery System	Watseka
	La Harpe High School	La Harpe
	Lake Land Community College	Matton
	LaSalle-Peru Area Vocational Center	Peru
	Liberty High School	Liberty
	Meridian High School	Mounds
	Monmouth High School	Monmouth
	Morrisonville Elementary	Morrisonville
	Mulberry Grove CUSD #1	Mulberry Grove
	Northwest CUSD #175	Sciota
	Olney Central College	Olney
	Pekin Area Vocational Center	Pekin
	Pittsfield High School	Pittsfield
	Pleasant Hill High School	Pleasant Hill
	Pope County High School	Golconda
	Richland Community College	Decatur
	Ridgeway Attendance Center	Ridgeway
	River Ridge CUSD #210	Roseville
	Roseville High Shcool Unit #200	Roseville
	ROWVA CUSD #208	Oneida
	Sandoval Jr/Sr High School	Sandoval
	Shawnee High Shcool	Wolf Lake
	Shiloh School District	Hume
	South Central High School	Farina
	Southeastern High School	Augusta
	St. Anne Community High School	St. Anne
	St. Elmo Jr/Sr High School	St. Elmo
	Thompsonville High School	Thompsonville
	Thomson CUSD #301	Thomson
	Tri-County ESC #10	Channahon
	Unity High School	Mendon
	Valmeyer CUSD #3	Valmeyer
	Vienna High School	Vienna
	Washington School	Johnston City
	West Frankfort High School	West Frankfort
	West Pike Community High School	Kinderhook
	Western High School	Buda

STATE	SCHOOL	CITY
ILLINOIS Continued	Westmer CUSD #203	Joy
	Williamsfield High School	Williamsfield
	Witt School	Witt
	Wyanet CSD #126	Wyanet
	Yorkwood High School	Monmouth
MISSISSIPPI	Ackerman Elementary School	Ackerman
	Ackerman High School	Ackerman
	Alcorn Central High School	Glen
	Amanda Elzy High School	Greenwood
	Bay High School	Bay St. Louis
	Biggersville High School	Corinth
	Bogue Chitto Day School	Philadelphia
	Byrum Attendance Center	Jackson
	Caldwell High School	Columbus
	Choctaw Central School	Philadelphia
	Clarkdale Attendance Center	Meridian
	Columbia High School	Columbia
	Ed Mayo Junior High School	Moss Point
	Greenville High school	Greenville
	Greenwood High School	Greenwood
	Hattiesburg High School	Hattiesburg
	Hawkins Junior High School	Hattiesburg
	Kossuth High School	Kossuth
	LeFlore County High school	Itta Bena
	Louisville High School	Louisville
	Magnolia Junior High School	Moss Point
	McComb High School	McComb
	Meridian High School	Meridian
	Moss Point High School	Moss Point
	Natchez High School	Natchez
	Natchez Middle School	Natchez
	Natchez-Adams Vo-Tech	Natchez
	Northeast Jones High School	Laurel
	Noxapater Attendance Center	Noxapater
	Olive Branch High School	Olive Branch
	Pascagoula High School	Pascagoula
	Pascagoula Vo-Tech	Pascagoula
	Raymond High School	Raymond
	R.H. Watkins High School	Laurel
	South Jones High School	Ellisville
	Southeast High School	Meridian
	Standing Pine Day School	Walnut Grove
	Starkville High School	Starkville
	S.D. Lee Lee High School	Columbus
	Threadgill School	Greenwood
	Tupelo High School	Tupelo
	T.L. Weston High School	Greenville
	Utica High School	Utica
	Vicksburg High School	Vicksburg
	Warren Central High School	Vicksburg
	Weir Attendance Center	Weir
	West End Harris School	Meridian
	West Jones High School	Laurel
	West Lauderdale Attendance Center	Collinsville

STATE	SCHOOL	CITY
MISSISSIPPI Continued	Wilkinson County High School	Woodville
	Yazoo City High School	Yazoo City
	Yazoo City Junior High School	Yazoo City
NORTH CAROLINA	Bunn High School	Bunn
	Charles B. Aycock High School	Pikeville
	Cherokee High School	Cherokee
	Farmville Central High School[4]	Farmville
	Hobbton High School	Newton Grove
	Lakewood High School	Roseboro
	Littlefield High School	Lumberton
	Louisburg High School	Louisburg
	Midway High School	Dunn
	North Edgecombe High School	Tarboro
	North Stokes High School	Danbury
	Hertford County High School[5]	Ahoskie
	Richlands High School	Richlands
	South Robeson High School	Rowland
	Tabor City Primary High School[6]	Tabor City
	Thomasville High School	Thomasville
	Union High School[7]	Clinton
TEXAS	Abbott ISD	Abbott
	Apple Springs ISD	Apple Springs
	Aquilla District	Aquilla
	Asherton High School	Asherton
	Bandera High School	Bandera
	Benavides ISD	Benavides
	Blooming Grove High School	Blooming Grove
	Bosqueville High School	Waco
	Brackenridge High School	San Antonio
	Bushland ISD	Bushland
	Byers Public Schools	Byers
	Bynum High School	Bynum
	Campbell K-12 School	Campbell
	Carrizo Springs High School	Carrizo Springs
	Central Heights District	Nacogdoches
	Ranger High School	Ranger
	Flatonia High School	Flatonia
	Coolidge School District	Coolidge
	Cotulla High School	Cotulla
	Covington High School	Covington
	Crockett High School	Crockett
	Crystal City High School	Crystal City
	Deweyville High School	Deweyville

[4] Was originally Southwest High School, NC

[5] Was originally Northampton East, NC

[6] Was oriignally Swansboro High School, NC

[7] Was originally Wallace-Rose Hill High School, NC

STATE	SCHOOL	CITY
TEXAS Continued	Dilley ISD	Dilley
	Douglass ISD	Douglass
	D'Hanis High School	D'Hanis
	Edcouch-Elsa ISD	Edcouch
	Edgewood High School	San Antonio
	Floresville High School	Floresville
	Gold Burg High School	Bowie
	Gorman High School	Gorman
	Hamilton ISD	Hamilton
	Happy High School	Happy
	Hart High School	Hart
	Hedley High School	Hedley
	Highlands High School	San Antonio
	Hondo ISD[8]	Hondo
	Ingram Tom Moore High School	Ingram
	Jayton-Girard District	Jayton
	Kennard ISD	Kennard
	Knippa ISD	Knippa
	Kopperl ISD	Kopperl
	Rising Star High School[9]	Rising Star
	Littlefield ISD	Littlefield
	Lohn High School	Lohn
	Loop ISD	Loop
	Martinsville District	Martinsville
	Maud ISD	Maud
	McLeod High School	McLeod
	Medina ISD	Medina
	Milford District	Milford
	Newcastle District	Newcastle
	North Hopkins High School	Sulphur Springs
	Northside High School	Ft. Worth
	Northside High School	Vernon
	Oglesby High School	Oglesby
	Palmer ISD	Palmer
	Pearsall High School	Pearsall
	Penelope ISD	Penelope
	Poolville District	Poolville
	Georgetown ISD	Georgetown
	Prairie Valley High School	Nocona
	Presidio ISD	Presidio
	Rio Vista District	Rio Vista
	Rusk ISD	Rusk
	Sabinal High School	Sabinal
	Saltillo High School	Saltillo
	Bruceville-Eddy ISD[10]	Eddy
	Southside High School	San Antonio
	Stockdale High School	Stockdale
	Sulphur Bluff High School	Sulphur Bluff

[8] Was originally Eagle Pass, TX

[9] Was originally Leakey, TX

[10] Was originally Somerset, TX

STATE	SCHOOL	CITY
TEXAS Continued	Timpson High School	Timpson
	Tornillo High School	Tornillo
	Union Hill ISD	Gilmer
	Utopia High School	Utopia
	Valley View District	Valley View
	Vega ISD	Vega

BIA SITES

STATE	SCHOOL	CITY
ARIZONA	Hopi Jr/Sr High School	Keams Canyon
	Leupp Schools, Inc.	Winslow
	Tuba City High School	Tuba City
CALIFORNIA	Sherman Indian High School	Riverside
MINNESOTA	Chief Bug-O-Nay-Ge Shig School	Cass Lake
MONTANA	Rocky Boy Tribal High School	Box Elder
NORTH DAKOTA	Turtle Mountain High School	Belcourt
	White Shield School	Roseglen
NEW MEXICO	Santa Fe Indian School	Santa Fe
	To'Hajilee-He (Canoncito)	Laguna
	Laguna-Acoma[11]	Grants
OKLAHOMA	Sequoyah High School	Tahlequah
SOUTH DAKOTA	Cheyenne Eagle Butte School	Eagle Butte
	Crow Creek High School	Stephan
	Flandreau Indian School	Flandreau
	Lower Brule Day School	Lower Brule
WISCONSIN	Oneida Tribal School	Oneida

[11] Was originally Drippings Springs, TX

STATE	SCHOOL	CITY
TEXAS Continued	Timpson High School	Timpson
	Tornillo High School	Tornillo
	Union Hill ISD	Gilmer
	Utopia High School	Utopia
	Valley View District	Valley View
	Vega ISD	Vega

BIA SITES

STATE	SCHOOL	CITY
ARIZONA	Hopi Jr/Sr High School	Keams Canyon
	Leupp Schools, Inc.	Winslow
	Tuba City High School	Tuba City
CALIFORNIA	Sherman Indian High School	Riverside
MINNESOTA	Chief Bug-O-Nay-Ge Shig School	Cass Lake
MONTANA	Rocky Boy Tribal High School	Box Elder
NORTH DAKOTA	Turtle Mountain High School	Belcourt
	White Shield School	Roseglen
NEW MEXICO	Santa Fe Indian School	Santa Fe
	To'Hajilee-He (Canoncito)	Laguna
	Laguna-Acoma[11]	Grants
OKLAHOMA	Sequoyah High School	Tahlequah
SOUTH DAKOTA	Cheyenne Eagle Butte School	Eagle Butte
	Crow Creek High School	Stephan
	Flandreau Indian School	Flandreau
	Lower Brule Day School	Lower Brule
WISCONSIN	Oneida Tribal School	Oneida

[11] Was originally Drippings Springs, TX

DEADLINE: Postmarked by midnight December 16, 1988

ILLINOIS STATE BOARD OF EDUCATION
Southern Illinois Regional Office
First Bank and Trust Building
Suite 214, 123 South 10th Street
Mt. Vernon, Illinois 62864-4013
618/242-1676

1988-89 STAR SCHOOLS PROGRAM APPLICATION

Local Education Agency

REGION-COUNTY-DISTRICT-TYPE CODE	COUNTY	K-8 STUDENT ENROLLMENT
DISTRICT NAME AND NUMBER	ESC NUMBER	9-12 STUDENT ENROLLMENT
CONTACT PERSON IF OTHER THAN SUPERINTENDENT	TELEPHONE	CHAPTER 1 STUDENT ELIGIBILITY

DEC 1988 RECEIVED Mt. Vernon Office

A. Please estimate the projected number of students and/or staff to be affected by the 1989-90 Star Schools Program.

	GRADES													TOTAL
	K	1	2	3	4	5	6	7	8	9	10	11	12	
Students	9	9	9	9	9	9	9	5	5	8	8	25	25	139
Staff	4	4	4	4	4	4	4	3	3	1	2	2	2	41

B. Estimate below which subject area(s) the Star Schools Program will focus on in the 1989-90 school year (more than one box may be checked).

- ☒ Mathematics
- ☒ Biological and Physical Sciences
- ☒ Foreign Languages
- ☒ Other (specify) ______

C. Briefly describe the activities proposed for 1989-90 including the projected impact on school improvement and how that impact will be measured and evaluated for: *(Use additional pages if necessary.)*

1. Students

2. Staff

ISBE 65-02 (11/88)

Southern Illinois Regional Of'ce
First Bank and Trust Building
Suite 214, 123 South 10th Street
Mt. Vernon, Illinois 62864-4013
618/242-1676

ASSURANCES

Local Education Agency

The applicant for the Star Schools Program hereby assures the Illinois State Board of Education that:

1. The project will be administered in conformity with the provisions of Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, and Title IX of the Education Amendments of 1972, the Right to Privacy of Student Records (Federal Regulations, November 1975), and any regulations issued thereunder, as well as, all other applicable Federal and State legislation.

2. Courses designed for this purpose will be supplemental rather than supplantal.

3. The control of property provided, and title to property derived therefrom, shall be in or by a public agency for the uses and purposes provided, and that a public agency will administer such property and apply them only for the purposes for which they are granted.

4. The applicant will make an annual report and such other reports to the Illinois State Board of Education, in such form and containing such information, as may be reasonably necessary to enable the Illinois State Board of Education to perform its duties including information relating to the educational achievement of students participating in such programs and to required fiscal records, and will keep such records and afford such access thereto as the Illinois State Board of Education may find necessary to assure the correctness and verification of such reports.

5. Provisions have been made for the equitable participation and benefit of children and teachers in private, nonprofit schools located within the district.

6. Programs will take into account the need for greater access to and participation in mathematics, science, and foreign languages and careers of students from historically underrepresented groups, including females, minorities, individuals with limited English proficiency, the handicapped, and migrants.

7. The applicant has a minimum of 17.1% of its student body qualify for service under Chapter 1 guidelines.

8. The applicant has less than 700 FTE students enrolled at the high school level or less than 450 FTE students at the elementary (K-8) level.

9. The applicant will follow all course and program guidelines established by the TI-IN United Star School Network.

10. The applicant will submit a proposal for approval which would comply with the Experimental Program Guidelines, Chapter 122, Section 10-19 of The School Code of Illinois.

11. The curriculum of the school district does comply with Illinois Recognition standards and meets minimum requirements established by the Illinois State Board of Education and the state legislature.

12. Supervision of classrooms in which distance education courses are offered will be provided by a certificated teacher.

13. The assessment of student performance in distance education programs will be based upon clearly stated learning objectives reflecting the Illinois State Goals for Learning required by the Illinois State Board of Education to comply with the reform legislation adopted in the summer of 1985.

14. The procedure for student assessment utilized for telecommunications-based distance learning programs will be the same learner objective assessment program that applies to other school programs.

15. The above assurances will also apply to any subsequent amendments and to districts participating in multidistrict programs.

Date | Signature of Chief Administrative Officer

TI-IN UNITED STAR NETWORK

CAREER VISION

Thursdays
2:30 - 3:30PM CT
Channel 52

DATE	TOPIC	SPECIAL GUESTS
Feb 8	Physics	Dr. Martin Schub - University of Chicago, Fermi Lab
Feb 15	Geology	Peggy Ma - Edison Jr. High
Feb 22	Meteorology	Dr. Dan Wise - WIU Geography Department
Mar 8	Biotechnology	Dr. George Keiffer - University of Illinois School of Life Science
Mar 15	Sports Medicine	Steve Tippett - Physical Therapist and Director of the Sports Center
Mar 29	Cartography/ Mapping	Dr. John Klasner - WIU Geology Department
Apr 5	Museums	
Apr 19	Oncology/ Pathology	Oncologist from McDonough District Hospital
Apr 26	Broadcasting Tehnology	
May 3	Microbiology	Dr. Paul Nollen - WIU Biology Department
May 10	Forestry and Natural Resources	Ed Wolfenberger
May 17	Computers	

TO REGISTER FOR THE SERIES: Use school letterhead, provide the program title and list of interested participants and return to TI-IN United Star Network, 1000 Central Parkway North, Suite 190, San Antonio, TX 78232. Any Questions? Call 512-490-3900.

NOTE: Registered sites will receive booklets for thier classroom use which outline the discrepant events demonstrated throughout this series.

1000 Central Parkway North
Suite 190B
San Antonio, Texas 78232
(512) 490-3900

TI-IN UNITED STAR NETWORK

GIFTED/TALENTED EDUCATION

Tuesdays
March 6 - April 10, 1990
3:30 - 4:30PM CT
Channel 52

Mar 13: "GEEK", "KNOW IT ALL" OR "NERD": UNDOING THE STEREOTYPES

What socioemotional problems does a student face who has been labeled "gifted and talented" and even worse "geek," "know it all," or "nerd?" How can a teacher alleviate these problems and assist the student? A middle school counselor and a panel of gifted and talented students will address these issues and more. A "must see" program for teachers and parents.

Mar 20: EXEMPLARY PROGRAMMING DESIGNS IN ILLINOIS FROM THE TEACHER'S PERSPECTIVE

Which program design for the gifted and talented works best in your community? Who should teach the gifted and talented student? A panel of teachers from a variety of delivery systems will present their answers. Video clips will be used to highlight students in their classrooms.

Mar 27: DIFFERENTIATING THE CURRICULUM FOR THE GIFTED AND TALENTED: MAGIC OR REALITY?

Does a differentiated curriculum for gifted and talented student mean anything that is substantially different from what is already being provided for all learners? Curriculum modification takes places through adaption of the "core curriculum" by means of content, process, product, and learning environment. Learn how your school curriculum can be modified to meet the needs of the gifted and talented student.

Apr 3: HOW EARLY IS TOO EARLY/IDENTIFICATION AND PROGRAMMING FOR THE GIFTED AND TALENTED K-3

"Never too early" is the simple answer to the above question. The presenters will share methods for identifying potential talent in your children. Sample identification instruments and tools will be explained. Means of numbering talents will be explored and exemplary curriculum will be highlighted. If you are a teacher or administrator and are concerned with early identification, don't miss this program.

Apr 10: PROVING THE EFFECTIVENESS OF YOUR PROGRAM THROUGH EVALUATION

A program for the gifted and talented cannot survive let alone flourish without an effective evaluation plan. What constitutes an effective evaluation plan? How can a coordinator of the Gifted/Talented who is already wearing too many hats implement and manage a plan? How can the results of your evaluation find another home beside the file cabinet? A panel of educators will delve into these problems and deliver some practical, workable solutions to the audience.

TO REGISTER: Use school letterhead, provide the program title and list of interested participants and return to the **TI-IN United Star Network** office. Quetions? Call **512-490-3900.**

1000 Central Parkway North
Suite 1903
San Antonio, Texas 78232
(512) 490-3900

2/27/90

COLLEGE CREDIT

EARTH SCIENCE (3 units) Introduction to the science of geology and its value in daily living. Simple concepts of physics, chemistry, and biology will be used to establish a foundation of understanding. Mississippi State University at Starkville

TUESDAYS, Jan 23 - May 8 (excluding Mar 13) 3:30 - 6:30pm CST*, CH36; Fee: $150
Registration Deadline: First Class

DEMONSTRATIONS AND CONCEPTS FOR PHYSICS TEACHERS (3 units) Content will focus on the development of concepts, problem-solving techniques, demonstrations and experiments appropriate for the high school environment. Inexpensive materials, readily available to most teachers, will be used to encourage hands-on teaching. Mississippi State University at Starkville

THURSDAYS, Jan 25 - May 17 (excluding Mar 15 and Apr 12)
3:30 - 6:30pm CST*, CH36; Fee: $150
Registration Deadline: First Class

PARTNERS IN PROFESSIONAL GROWTH (4 or 5 units) This is a continuation course of EDUC 298, a peer coaching program for beginning teachers, which began in the fall semester. Course sessions are scheduled on selected Saturdays, January 6 through May 5, 1990 outlined in the Spring Program Guide. California State University, Chico

COLLEGE CREDIT

INTRODUCTION TO CONSULTATION FOR SPECIAL EDUCATORS (1 unit) This course presents a model for a co-equal consulting relationship and guides participants on how to apply the model within their own school settings. California State University, Chico

SATURDAYS, Jan 27, Feb 10, 24
11:00am - 5:00pm CST, CH36; Fee: $50
Registration Deadline: First Class

FOREIGN/SECOND LANGUAGE EDUCATION: CURRENT RESEARCH AND DEVELOPMENT (3 units) Exploration of theories of language acquisition and and applications of research. Discussions of linguistic, psychological, sociocultural, historical, and legal bases of foreign language and English as a second language. California State University, Chico

WEDNESDAYS, Jan 31 - May 16 (excluding Apr 11) 6-8:50pm CST*, CH36; Fee: $150
Registration Deadline: First Class

FOREIGN/SECOND LANGUAGE EDUCATION: METHODS (3 units) A survey of innovative approaches to foreign language teaching and overview of theory and practice in the field. California State University, Chico

TUEDAYS, Jan 30 - May 15 (excluding Apr 10) 6-8:50pm CST*, CH 60; Fee: $150
Registration Deadline: First Class

**Daylight-savings time begins April 1, 1990.*

TI-IN UNITED STAR NETWORK.

SPRING 1990 SEMESTER

1000 CENTRAL PARKWAY NORTH
SUITE 190
SAN ANTONIO, TEXAS 78232
(800) 999-8446
or
(512) 490-3900

TI-IN UNITED STAR NETWORK This brochure outlines additional programming which is available to TI-IN Network subscribers during Spring 1990. This is possible through a grant awarded to the *TI-IN United Star Network* by the United States Department of Education under the Star Schools Program. Through this funding, network subscribers are provided with student enrichment, staff development, and college credit courses in the critical subject areas of mathematics, foreign languages, and science.

REGISTRATION

Student Enrichment and Staff Development: Using school letterhead, list the program and interested participants and return to *TI-IN United Star Network*. (No registration fees are required.)

College Credit: Complete the TI-IN Network Registration/Validation Form, include the appropriate registration fee (checks made payable to *TI-IN United Star Network*), return to *TI-IN United Star Network* by the stated registration deadline.

STUDENT ENRICHMENT

***CAREER VISION** (Students, Grades 7-9)* Video field trips and discussions with professionals which explore math and science-related careers. (14 hrs) Western Illinois University at Macomb

> **THURSDAYS**, Jan 18, 25, Feb 8, 15, 22, Mar 8, 15, 29, Apr 5, 19, 26, May 3, 10, 17 2:30 3:30pm CST*, CH52

***FOREIGN LANGUAGE ALTERNATIVES LAB** (Students, Grades 9-12)* An opportunity to explore other languages and cultures focusing on Latin, Spanish, French, German, and Japanese. (10 hrs) Education Service Center, Region 20, San Antonio, Texas

> **WEDNESDAYS**, Jan 24, Feb 7, 21, Mar 7, 28, Apr 11, 18, 25, May 2, 9; 2:30-3:30pm CST*, CH36

***GUIDANCE COUNSELING INSTITUTE FOR MATH** (Students, Grades 9-12)* An inside look at a wide variety of career options in the field of mathematics as well as an opportunity to talk with practicing professionals. Includes signing for the hearing impaired or deaf student. (5 hrs) Education Service Center, Region 20, San Antonio, Texas

> **WEDNESDAYS**, Jan 31, Feb 14, 28, Mar 14, Apr 4; 2:30-3:30pm CST*, CH36

***SALUT LA FRANCE** (Students, Grades 9-12)* Information about French society, science, art, and summary of world news -- all presented in French. Western Illinois University, Macomb

> **TUESDAYS**, Jan 9, 23, 30, Feb 6, 13, 20, Mar 6, 13, 20, Apr 3, 10, 17, May 1, 8 Noon-12:25pm CST*, CH60

STAFF DEVELOPMENT

***BIOPREP TEACHER INSTITUTE** (Teachers, 7-12)* Teaching strategies and techniques for motivating students in various subjects with the focus on preparing students for success in college. (12 hrs) University of Alabama at Tuscaloosa

> **MONDAYS**, Jan 22, Feb 5, 19, Mar 5, 19, Apr 2, 16, 30, May 14, 28; 3:30-4:30pm CST*, CH36 (3:30-5:00pm during Feb and March)

***FOREIGN LANGUAGE IN THE ELEMENTARY SCHOOL** (Teachers, K-5)* Basic training focusing on curriculum, teaching methodology, and integration into the second language program. (18 hrs) North Carolina Department of Public Instruction in Raleigh

> **MONDAYS**, Jan 29, Feb 12, 26, Mar 12, 26, Apr 9, 23, May 7, 21; 2:30-4:30pm CST*,CH36 Registration Deadline: Jan 17, 1990 (to receive handout materials for the first class)

***GIFTED/TALENTED EDUCATION** (Teachers and Administrators, K-12)* Introduction to gifted/talented education with emphasis on identifying and meeting the needs of students. (7 hrs) Western Illinois University at Macomb

> **TUESDAYS**, Feb 27, Mar 6, 13, 20, 27, Apr 3, 10; 3:30-4:30pm CST*, CH52

***EFFECTIVENESS TO EXCELLENCE** (All Teachers and Administrators)* Initiatives of the Bureau of Indian Affairs education program, with special emphasis on early childhood, parental involvement, and the Effective Schools Project. (1.5 hrs) Education Service Center, Region 20, San Antonio, Texas

> **WEDNESDAY**, Apr 4, 5-6:30pm CDT, CH 44

***SALUT LA FRANCE!** (French Teachers, Administrators, Interested Community Members)* An opportunity to interact with representatives from the French Cultural Services. Designed for teachers needing help with or suggestions for teaching French. (5 hrs) Western Illinois University, Macomb

> **WEDNESDAYS**, Jan 31, Feb 7, Mar 21, Apr 11, May 2; 4-5:00pm CST* CH36 (CH44 Mar & Apr)

** Daylight-savings time begins April 1, 1990.*

TI-IN UNITED STAR NETWORK.

MISSISSIPPI STATE UNIVERSITY
COURSE DESCRIPTIONS

Appendix A

SYLLABUS

Course: EDF 7363 Special Topic: Junior High Science Teacher Institute

Course Information: This institute consists of motivational, hands-on science programs. The topics for this institute have been specifically designed to enhance the teaching of science in grades seven, eight, and nine. Demonstrations of scientific experiments, participation in hands-on science activities, and research relevant to discussion topics will be common to all sessions.

Date/Time: Wednesdays, 3:45 p.m. - 7:00 p.m. CDT
Channel 36
October 4, 1989 through January 3, 1990 (excluding holidays: November 22, December 20, and December 27)

Target Audience: Currently employed junior high science teachers

Registration Deadline: First class

Registration Fees: $150.00. Additional forms must be completed. See separate attachment.

Course Goal: To equip the junior high science teacher with an understanding of the process skills approach using low budget equipment in planned laboratory exercises.

Course Objectives: Listed at the beginning of each of the handouts for each topic.

Instructors: Mississippi State University Video Instructor:
Ms. Regina L. Procell

Mississippi State University Faculty:
Dr. Linda W. Morse
Dr. Herbert M. Handley

Address: Mississippi State University
P.O. Box 5365
Mississippi State, MS 39762

Telephone: WATS: 800-234-3067 or (601) 325-3720

Office Hours: Monday 2:00-4:00 p.m. (CST)
Friday 8:30-10:30 a.m. (CST)

Textbook: No text required

Course Manual: Handouts on each topic are included in the course manual. These handouts include objectives, content information, equipment, and assignments. It will be mailed monthly to registered students.

Equipment/Supplies: Listed in course manual

Credits: 3 graduate units or graduate hours

Grading/Evaluation: 25% midterm exam
25% final exam
50% assignments

Each of the exams will be given as noted on the syllabus. The assignments are listed on the handouts that accompany each session or topic.

The grading scale will be as follows:

A	90-100
B	80-89
C	70-79
D	60-69
F	0-59

Information about Instructors:

Regina Procell is a doctoral student at Mississippi State University. Her degree program is secondary education with supporting areas in biology and chemistry. She obtained bachelor's and master's degrees in science education from the University of Southern Mississippi. Her teaching experience has been in junior high science, biology, and chemistry. She is an active member of Phi Kappa Phi and Kappa Delta Phi.

Dr. Linda W. Morse is Senior Research Scientist in the Bureau of Educational Research and Evaluation and Adjunct Assistant Professor in the Department of Educational Psychology at Mississippi State University. She holds bachelor's, master's, and doctorate degrees from Florida State University. She has worked with junior high students as both teacher and researcher. She serves as project coordinator for the Junior High Science Teacher Institute.

Dr. Herbert M. Handley is currently Distinguished Professor of Curriculum and Instruction and Senior Researcher in the Bureau of Educational Research and Evaluation at Mississippi State University. He holds a bachelor's degree from the University of North Alabama, and a master's degree and doctorate in science education from the University of Georgia. He has extensive experience as a science teacher and professor, as well as a researcher in science education.

PARTICIPANT QUESTIONNAIRE

JUNIOR HIGH SCIENCE TEACHER INSTITUTE

The purpose of this questionnaire is to help us better plan instruction which will meet your needs. We will use this information to better understand you and the role of this course related to each participant's unique situation. Your confidentiality of responses is assured. Please take a few minutes to answer the following questions. Return as soon as possible, but no later than October 11 to:

Dr. Linda W. Morse/Regina Procell
Mississippi State University
P.O. Box 5365
Mississippi State, MS 39762

1. Are you taking this course for credit or for staff development?

_____ CREDIT _____ STAFF DEVELOPMENT

2. Name ______________________________

3. Address ______________________________

4. Name and location of school district ______________________________

____

5. What is your current teaching schedule?

Time Period ______________ Subject/Grade______________
Time Period ______________ Subject/Grade______________
Time Period ______________ Subject/Grade______________
Time Period ______________ Subject/Grade______________
Time Period ______________ Subject/Grade______________
Time Period ______________ Subject/Grade______________

6. Number of students your school district:
_____ under 1000
_____ 1000-2000
_____ 2001-5000
_____ 5001-10,000
_____ 10,001 or more

7. Number of students in your school:
_____ under 249
_____ 250-500
_____ 501-1000
_____ 1001-2000
_____ 2001-3000
_____ 3001-more

8. Number of years teaching experience:

_____ 0
_____ 1-5 yrs.
_____ 6-10 yrs.
_____ 11-15 yrs.
_____ 16-20 yrs.
_____ 21 or more yrs.

9. Are you certified in science? _____ yes _____ no

10. What type of certificate do you hold? ______________________________

11. In which content areas are you certified?

____

12. What is your highest degree?
_____ bachelor's _____ master's _____ specialist _____ doctorate

13. What is your average science class size?

_____ 10-15 pupils
_____ 16-20 pupils
_____ 21-25 pupils
_____ 26-30
_____ 31 or more pupils

14. What is a convenient time to call you (from 8 a.m. - 5 p.m. CST)?_____

15. What telephone number can be used? (   )__________________

16. How would you rate the science laboratory facilities at your school for the course(s) you teach?

_____ excellent _____ good _____ fair _____ poor

17. How many courses in science teaching methods have you taken?

_____ 1-3 _____ 4-6 _____ 7-9 _____ 10+

18. How many courses via video instruction have you previously taken?

_____ 0 _____ 1 _____ 2 _____ 3 _____ 4+

19. How frequently do you view other TI-IN staff development courses?

__ weekly __ monthly __ once a semester __ once a year __ never

20. Why are you taking this course?

_____ required for certification
_____ required by district
_____ sounded interesting
_____ need course credit
_____ other (explain) ______________________________

21. In your opinion, what are the three major problems facing teachers in today's junior high schools?

(1)

(2)

(3)

22. What are the three biggest problems you face concerning instructional materials available in Science at the junior high level?

(1)

(2)

(3)

23. What are some junior high science topics that you would like to see more teaching ideas for?

(1)

(2)

(3)

24. Do you have any suggestions for this course? If so, please describe each briefly.

25. What other information would you like to share with us about yourself, your teaching situation, or what you would like as a result of participating in this course?

Thank you for helping us get to know you!

JUNIOR HIGH SCIENCE INSTITUTE

OUTLINE

Broadcast 1 - October 4

- Introduction of course
- Requirements and assignments
- Registration for course credit
- Working with early adolescents
- Sciencing
- Using texts
- Low budget science
- Suggested equipment

Broadcast 2 - October 11

- Scientific literacy
- Common body of knowledge
- Appropriate attitudes and their development
- Introduction to the scientific method and science process skills

Broadcast 3 - October 18

- Observing
- Measuring
- Classifying

Broadcast 4 - October 25

- Predicting
- Inferring
- Communicating

Broadcast 5 - November 1

- Inquiry

Broadcast 6 - November 8

- Midterm Exam
- Operational definitions
- Hypothesizing

Broadcast 7 - November 15

- Control of variables
- Experimenting

Broadcast 8 - November 29

- Questioning
- Taba's strategy

Broadcast 9 - December 6

- Research reports
- Safety

Broadcast 10 - December 13

- Types of experiments

Broadcast 11 - January 3

- Methods of evaluation
- Science fairs
- Course assessment and evaluation
- Final Exam

COURSE INFORMATION

NAME: Geology: A Science of a Living Planet GG 5993/7993

INSTRUCTOR: Dr. Mario V. Caputo, Assistant Professor of Geology

Address: Department of Geology and Geography
P. O. Drawer 5167
Mississippi State University
Mississippi State, MS 39762

Telephone: 800-825-8755

Conference time: Wednesday, 4:00-5:00 pm CST
Thursday, 2:00-4:00 pm CST

VIEWING: Tuesday, 3:30-6:30 pm CST from January 23 until May 8, 1990 (except for the holiday, Tuesday, March 13, 1990)

Telecast from the University Television Center, Mississippi State University on TI-IN United Star Network Channel 36

TEXTBOOKS: (Optional)

Hamblin, W. K., 1989, The Earth's Dynamic Systems: New York, MacMillan Publishing Co., 576 p.

Hamblin, W. K., 1989, Physical Geology: A Study Guide (to accompany The Earth's Dynamic Systems): New York, MacMillan Publishing Co., 248 p.

TARGET AUDIENCE: General science or Earth science teachers in elementar and secondary schools

NARRATIVE: Geology: a science of a living planet is a 3 credit hour college course. It is taught at a level higher than that of a first-yea or introductory course and in a manr r suitable for distance learning through tele ision. The course may serve as a refresher or enhancement for elementary and secondary school teachers in general science or Eart science. The goals of the instructor are to introduce the science of geology as a well integrated one with multiple applications, demonstrat the value of geology in daily living, and explore the natural processes which control the shape of the continents and land surfaces. Simple concepts of physics, chemistry, and biology are used to establish a foundation for understanding the workings of volcanoes, earthquakes, rivers, glaciers, wind, climate, ground-water, waves and tides, and the drifting of continents in shaping a restless Earth.

Grades are determined by the amount and percent of points accumulated at the end of the semester from the three exams and the final exam. Letter grading is based on the following percentage scale:

A: 90-100
B: 80-89
C: 70-79
D: 60-69
F: 59 and lower

BIOGRAPHICAL SKETCH: Dr. Mario V. Caputo joined the teaching and research staff in the Department of Geology and Geography in August, 1986. He earned degrees in geology at San Diego State University (B.Sc. 1976), Northern Arizona University (M.Sc., 1980), and University of Cincinnati (Ph.D., 1988) and served four years as a geologist exploring for oil and gas in Kansas, Colorado, and California for Mobil Oil Corporation. Courses such as General Geology, Honors in Historical Geology, Sedimentology, and Conservation of Natural Resources are integrated with insights from research excursions to Pacific, Atlantic, Gulf, and Bahamian coastlines, rivers along the Atlantic coastal plain, sand dune areas in southwestern United States, and sedimentary rocks in the canyonlands of Arizona and Utah.

COURSE OUTLINE

SURVEY OF EARTH SCIENCE I GG 1013

FALL SEMESTER, 1990

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

MISSISSIPPI STATE UNIVERSITY

DAY AND TIME: MWF 11:00-11:50 am
CLASSROOM LOCATION: 217 Hilbun Hall
PROFESSOR: Dr. Mario V. Caputo, Assistant Professor of Geology
Office: 106 Hilbun Hall
Department of Geology and Geography, 113 Hilbun Hall
Telephone: 325-2906

Office hours: Tuesday: 2:00-4:00 pm
Wednesday: 2:00-4:00 pm

Required textbook: Tarbuck, E.J., and Lutgens, F.K., 1990, The Earth, An Introduction to Physical Geology, 3rd edition, Merrill Publishing Company, 651 p.

LECTURE TOPIC	RELATED READING
I. Introduction	Ch. 1
A. Logistics, scope and nature of course	
B. Geology: defined, importance, usefulness	
II. Overview of the Earth	
A. Earth in the Solar System	Ch. 22. pp. 576-577
B. Internal structure and composition	Ch. 1, pp. 13-17; Ch. 17
III. Matter: lithosphere, hydrosphere, biosphere, atmosphere	
A. Chemistry of the Lithosphere	Ch. 2
1. atoms: building blocks of elements	
2. elements: building blocks of minerals	
3. minerals: building blocks of rocks	

B. Forming the Lithosphere	
1. igneous rocks	Ch. 3, 4
2. weathering: soil and sediment	Ch. 5
3. mass transport	Ch. 9
4. sedimentary rocks	Ch. 6
5. metamorphic rocks	Ch. 7
IV. Physics of the Earth	
A. gravity	
B. magnetism	Ch. 17, pp. 437-438
V. Tectonics: a restless planet	
A. Seismology and earthquakes	Ch. 16, 17
B. Plates in motion	Ch. 18
C. Deformation of rocks	Ch. 15
D. Evolution of continents and ocean basins	Ch. 19, 20
VI. Surface of the Earth: Environments Processes, Landscapes	
A. Movement of surface water	Ch. 10
B. Movement of ground water	Ch. 11
C. Movement of ice	Ch. 12
D. Wind and Deserts	Ch. 13
E. Waves and tides: shorelines	Ch. 14

EXAM SCHEDULE

First exam: September, 1990	100 points
Second exam: October, 1990	100 points
Third exam: November, 1990	100 points

FINAL EXAM: Saturday, December 8, 1990 8:00-11:00 pm

NOTE TO THE STUDENT:

Grades are based on class attendance and cumulative total of points earned from the four exams.

SYLLABUS

Course: PH 7533 Demonstrations and Concepts for Physics Teachers I

Course Information: This course is designed to serve the needs of high school physics teachers and to provide them with the tools necessary to teach high school physics. Content will focus on development of concepts, problem-solving techniques, and demonstrations and experiments appropriate for the high school environment. Activities will be presented for each major topic. Techniques for conducting classes, including questioning strategies, and development of process skills, will be included.

Topics: Topics normally covered in first-semester high school physics including straight-line motion, vectors, two-dimensional motion, forces, circular motion, gravitation, work, power, energy, momentum, rotational motion, and equilibrium.

Date/Time: Thursdays, 3:30 p.m. - 6:30 p.m. CST*
Channel 36
January 25, 1990 through April 26, 1990
(excluding holidays: March 15 and April 12)
*Daylight-savings time begins April 1, 1990

Prerequisite: It is assumed that the audience has had an introductory, noncalculus-based physics course.

Registration Deadline: First Class

Registration Fee: $150. Additional forms must be completed. See separate attachment.

Instructor: Dr. Sandra H. Harpole

Address: Mississippi State University
Department of Physics and Astronomy
P. O. Drawer 5167
Mississippi State, MS 39762

Telephone: 800-678-8754 or (601) 325-8754

Office Hours: Tuesday 8:30 - 10:30 a.m. (CST)
Wednesday 2:00 - 4:00 p.m. (CST)

Textbook: Murphy and Smoot, Physics: Principles and Problems, 1986, Merrill.

Recommended Resource: *Resource Kit for the New Physics Teacher*, published by the American Association of Physics Teachers, 5112 Berwyn Road, College Park, MD 20740-4100, (310) 345-4220. Order #OP53.

Grading/Evaluation: 3 Quizzes - 25% each
Assignments - 25%

Three quizzes will be given as noted on the syllabus. The assignments include laboratory sessions, selected problem sets, and a write-up of one experiment or demonstration using inexpensive materials.

The grading scale will be as follows:

A	90-100
B	80-89
C	70-79
D	60-69
F	Below 60

Information about Instructor:

Dr. Sandra H. Harpole is an assistant professor of physics at Mississippi State University. She taught in Mississippi schools for a number of years; during that time she was involved in curriculum development, workshop presentations and science education developments. She was selected as the 1987 Mississippi Presidential Awardee for Excellence in Science Teaching.

PH 7533 Demonstrations and Concepts for Physics Teachers I
- Sandra Harpole

Telecast 1: January 25

- Introduction to Course
- Requirements and Assignments
- Registration for Course Credit
- How Do You Teach Physics?
- Process Skills as Related to Physics Teaching
- Graphing

Telecast 2: February 1

- Scientific Inquiry
- Scalar & Vector Quantities
- Vector Addition Graphical Method
- Distance & Displacement
- Average Speed & Velocity
- Instantaneous Speed & Velocity
- Acceleration
- Falling Bodies

Telecast 3: February 8

- Graphical Analysis of Linear Motion
- Vector Addition by Components

Telecast 4: February 15

- Problem Session
- Projectile Motion

Telecast 5: February 22

- Newton's Laws of Motion
- Applications of Newton's Laws Involving Friction
- QUIZ I

Telecast 6: March 1

- Applications of Newton's Laws Involving Inclines
- Problem Session
- Circular Motion

Telecast 7: March 8

- Discussion of Quiz I
- Momentum

Telecast 8: March 22

- Work & Power
- Simple Machines
- Problem Session

Telecast 9: March 29

- Energy
- QUIZ II

Telecast 10: April 5

- Rotational Motion
- Torque

Telecast 11: - April 19

- Equilibrium

Telecast 12: April 26

- Problem Session
- QUIZ III

SYLLABUS

Course: MA 4563/6563. Theory of Equations for Secondary Teachers. Complex numbers; polynomials and their properties; roots of algebraic equations; separation of roots, cubic/biquadratic equations; root approximation.

Date/Time: Monday -- Friday, June 4 -- 22, 1990, 1:00 p.m. -- 3:00 p.m., Central Time.
Monday, June 25, 1990, 1:00 p.m. -- 4:00 p.m., Central Time.

Channel 44

Target Audience: Secondary mathematics teachers

Registration Deadline: May 7, 1990

Registration Fee: $150.00. Additional forms must be completed.

Course Objective: To equip the secondary mathematics teacher with an understanding of the topics normally included in a classical course in theory of equations (see course description above).

Instructor: Dr. Jerry F. Reed
Department of Mathematics and Statistics
Mississippi State University
P.O. Drawer MA
Mississippi State, MS 39762

Telephone: WATS 1-800-955-1821 or 601-325-7133

Office Hours: Monday -- Friday, 9:30 a.m. -- 11:00 a.m., Central Time

Textbook: Theory of Equations, J. V. Uspensky

Credits: 3 semester hours; undergraduate (4563) or graduate (6563) credit available.

Grading/Evaluation: Examinations (2, off-air)
Work sheet (1)
Final Examination (1 1/2 hour live, 1 1/2 hours off-air)

Each of the four evaluations is weighed equally in determining the final course average.

The grading scale will be as follows:

90 -- 100	A
80 -- 89	B
70 -- 79	C
60 -- 69	D
0 -- 59	F

Instructor/Biographical Information: Dr. Jerry F. Reed is currently serving as Professor of Mathematics and Associate Head of the Department of Mathematics and Statistics at Mississippi State University. He holds bachelor's and master's degrees in mathematics from The University of Mississippi and the doctorate degree in secondary mathematics education from Mississippi State University. He is currently serving as Chair of the National Council of Teachers of Mathematics' Conventions and Conferences Committee.

TI-IN
UNITED STAR
NETWORK.

March 20, 1990

TO: Program Contacts

FROM: Pamela S. Pease, Ph.D., Director of TI-IN United Star Network PSP

RE: Summer 1990 Staff Development Programming over TI-IN Network

Two programs will be offered through TI-IN United Star Network during Summer 1990: ***Theory of Equations for Secondary Teachers***, offered by Mississippi State University in Starkville, and ***The BioPrep Teacher Institute***, offered by The University of Alabama.

Theory of Equations for Secondary Teachers

June 4 - 22	Classes: Mondays - Fridays 1:00 - 3:00pm Central, CH 44
June 25	Final Exam: Monday 1:00 - 4:00pm Central, CH 44
Credit:	3 units undergraduate or graduate college credit
Registration Fee:	$150.00
Registration Deadline:	May 7, 1990

The BioPrep Teacher Institute

June 11 - 22	Mondays - Fridays 10:00am - Noon Central, CH 36
Credit:	None (staff development programming)
Registration Fee:	None
Registration Deadline:	May 7, 1990

No other staff development programs will be broadcast during the summer months through TI-IN United Star Network or TI-IN Network.

Registration: To register for the summer programs, participants must complete the ***TI-IN Network Registration/Validation Form***. These forms must be ***received by the TI-IN Network office by Monday, May 7***. It is imperative that you communicate your interest in participating in either of these programs since TI-IN Network may be upgrading your equipment during the summer months. By knowing whether you plan to participate in either of the following courses, TI-IN can best schedule site visits to accommodate your uninterrupted participation.

For those sites electing to subscribe to the staff development programming during the 1990-91 school year, staff development programs are scheduled to begin September 11, 1990. In April, you will receive ***TI-IN Network's 1990-91 Program and Course Guide*** which will include scheduling details and descriptions for next year's staff development programs.

NOTE: For your convenience, enclosed you will find a flyer to post in your teachers' lounges or in your administration offices in order to receive feedback from your staff on their interest in these programs. If you should have questions not addressed in this communication, please feel free to call the TI-IN United Star Network office in San Antonio at (512) 490-3900.

TI-IN UNITED STAR NETWORK 1000 CENTRAL PARKWAY NORTH SAN ANTONIO, TEXAS 78232

TI-IN
UNITED STAR
NETWORK.

SUMMER 1990 SIGNUP SHEET
Page Two

3/16/90
Please Post in Teachers' Lounge
or Administration Office

Receive Site Location: ______________________________
(School)

____
(City) (State)

THE BIOPREP TEACHER INSTITUTE

20 hours of Staff Development Programming through The University of Alabama

June 11 - 22	Mondays - Fridays 10:00am - Noon Central, CH 36
Registration Fee:	None
Registration Deadline:	May 7, 1990

This series continues with discussions on teaching strategies and techniques for motivating students in various subjects. Sessions will focus on a variety of subjects (English, Math, Physics, Chemistry, Social Studies, Biology) and include methods for interdisciplinary planning and implementing cross-curricular components. This Institute is based on the BioMedical Sciences Preparation (BioPrep) Program which has been implemented the past few years through the University of Alabama. The BioPrep Program focuses on preparing students for success in college as well as introducing them to the health care profession and the professional roles that exist within it.

Interested Participants: Sign below indicating your interest in this course and register through your TI-IN program contact using the ***TI-IN Network Registration/Validation Form.*** (Program Contacts: Be certain to mail registration forms to TI-IN Network so they are ***received by Monday, May 7.***)

____

____

____

____

TI-IN UNITED STAR NETWORK, 1000 CENTRAL PARKWAY NORTH, SAN ANTONIO, TEXAS 78232

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UNITED STAR
NETWORK.

SUMMER 1990 SIGNUP SHEET

3/16/90
Please Post in Teachers' Lounge
or Administration Office

Receive Site Location: ______________________
(School)

____
(City) (State)

THEORY OF EQUATIONS FOR SECONDARY TEACHERS
3 units of Undergraduate or Graduate College Credit through Mississippi State University

June 4 - 22	Classes: Mondays - Fridays 1:00 - 3:00pm Central, CH 44
June 25	Final Exam: Monday 1:00 - 4:00pm Central, CH 44
Registration Fee:	$150.00
Registration Deadline:	May 7, 1990

Teachers who need preparation for high school mathematics courses will be provided both background and advanced material. The principal focus of the course will be on the analytical aspects of relevant topics in mathematics. In addition, some effort will be made to illustrate how today's advanced technology, for example, personal computers and handheld graphics calculators, relates to the topics in question. Examples will be used to assist the participant in grasping the concepts being discussed. Although the course will not be a theorem-proof course, some proofs will be used in order to illustrate various proof techniques.

Interested Participants: Sign below indicating your interest in this course and register through your TI-IN program contact using the *TI-IN Network Registration/Validation Form.* (Program Contacts: Be certain to mail registration forms to TI-IN Network so they are *received by Monday, May 7.*)

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TI-IN UNITED STAR NETWORK, 1000 CENTRAL PARKWAY NORTH, SAN ANTONIO, TEXAS 78232

TI-IN UNITED STAR NETWORK

THEORY OF EQUATIONS FOR SECONDARY TEACHERS

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Instructor: Dr. Jerry Reed, Professor of Mathematics and Associate Head of the Department of Mathematics and Statistics at Mississippi State University.

To receive this course:

1. You must participate from one of the TI-IN Network satellite receive sites referenced on the attached list.
2. You must register by the May 7 deadline.

IF YOU HAVE QUESTIONS CONCERNING AVAILABILITY OF RECEIVE SITE LOCATIONS OR NEED REGISTRATION MATERIALS, CALL:

Dr. Linda Morse (601) 325-3720
Educational Research
Mississippi State University
-or-
TI-IN United Star Network (512) 490-3900 x 134

IF YOU HAVE QUESTIONS CONCERNING COURSE CONTENT, CALL:

Dr. Jerry Reed (601) 325-3414
Department of Mathematics
& Statistics
Mississippi State University

1000 Central Parkway North
Suite 1908
San Antonio, Texas 78232
(512) 490-3900

TI-IN UNITED STAR NETWORK

TI-IN RECEIVE SITE LOCATIONS IN MISSISSIPPI 3/7/90

THEORY OF EQUATIONS FOR SECONDARY TEACHER
3 units of undergraduate/graduate credit offered through Mississippi State University
June 4 - 25, 1990 (Registration Deadline: May 7, 1990)

DISTRICT	SCHOOL	CITY
Alcorn County Schools	Alcorn Central HS	Glen
	Biggersville HS	Corinth
	Kossuth HS	Kossuth
Bay St. Louis-Waveland SD	Bay St. Louis HS	Bay St. Louis
Choctaw Agency Schools	Bogue Chitto Day School	Philadelphia
	Choctaw Central School	Philadelphia
	Standing Pine Day School	Walnut Grove
Choctaw County Schools	Ackerman Elementary	Ackerman
	Ackerman High School	Ackerman
	Weir Attendance Center	Weir
Columbia Municipal SD	Columbia HS	Columbia
Columbus Municipal Sep SD	Caldwell HS	Columbus
	SD Lee HS	Columbus
DeSoto Schools	Olive Branch HS	Olive Branch
Greenville Municipal Sep SD	Greenville HS	Greenville
	T.L. Weston HS	Greenville
Greenwood Municipal Sep SD	Greenwood HS	Greenwood
	Threadgill School	Greenwood
Hattiesburg Municipal Sep SD	Hattiesburg HS	Hattiesburg
	Hawkins Junior HS	Hattiesburg
Hinds County School District	Byrum Attendance Center	Jackson
	Raymond HS	Raymond
	Utica HS	Utica
Jones County/Laurel SD	Northeast Jones HS	Laurel
	R.H. Watkins	Laurel
	South Jones HS	Ellisville
	West Jones HS	Laurel
Lauderdale County SD	Clarkdale Attendance Center	Meridian
	Southeast HS	Meridian
	W Lauderdale Atten Cntr	Collinsville
Leflore County SD	Amanda Elzy HS	Greenwood
	Leflore County HS	Ittabena
Louisville Municipal Sep SD	Noxapater Attendance Cntr	Noxapater
	Louisville HS	Louisville

1000 Central Parkway North
Suite 1908
San Antonio, Texas 78232
(512) 490-3900

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TI-IN UNITED STAR NETWORK

TI-IN RECEIVE SITE LOCATIONS IN MISSISSIPPI 3/7/90

DISTRICT	SCHOOL	CITY
McComb Municipal Sep SD	McComb HS	McComb
Meridian Public SD	Meridian HS	Meridian
	West End Harris School	Meridian
Moss Point Municipal Sep SD	Ed Mayo Junior HS	Moss Point
	Magnolia Junior HS	Moss Point
	Moss Point HS	Moss Point
Natchez-Adams Co Public SD	Natchez-Adams Vo-Tech	Natchez
	Natchez HS	Natchez
	Natchez Middle HS	Natchez
Pascagoula Municipal Sep SD	Pascagoula HS	Pascagoula
	Pascagoula Vo-Tech Cntr	Pascagoula
Starkville Municipal Sep SD	Starkville HS	Starkville
Tupelo Municipal Sep SD	Tupelo HS	Tupelo
Vicksburg/Warren SD	Vicksburg HS	Vicksburg
	Warren Central HS	Vicksburg
Wilkinson County SD	Wilkinson County HS	Woodville
Yazoo City Schools	Yazoo City Junior HS	Yazoo City
	Yazoo City HS	Yazoo City

If you have questions concerning availability of TI-IN receive site locations or need registration materials, call:

Dr. Linda Morse (601) 325-3720
Educational Research
Mississippi State University
-or-
TI-IN United Star Network (512) 490-3900 x 134

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Department of Mathematics
& Statistics
Mississippi State University

1000 Central Parkway North
Suite 1908
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(512) 490-3900

OLD DOMINION UNIVERSITY

DARDEN COLLEGE OF EDUCATION

AND

TI-IN UNITED STAR NETWORK

ANNOUNCE

EDUCATION IN THE YEAR 2000

Spring 1990
February 16 - May 23

4:30 - 5:45pm ET
3:30 - 4:45pm CT
2:30 - 3:45pm MT
1:30 - 2:45pm PT

Videotape Series

HOW TO VIEW THE SERIES

This series will be telecast over the TI-IN United Star Network. Limited permission to tape the series will be granted upon registration. To receive the series, schools must complete the enclosed registration form and enclose a check for $50.09 made payable to TI-IN United Star Network.

Confirmation of registration and channel designations will be provided upon receipt of this information. If you have questions, call the TI-IN United Star Network office at 1-512-490-3900.

REGISTRATION DEADLINE: February 9, 1990

OLD DOMINION UNIVERSITY TELEVISION

Old Dominion University has become an international leader in live television programming. The university broadcasts over 20 live, interactive telecourses each semester in such areas as graduate engineering, engineering management, nursing, computer science, foreign languages and education. The university has also won awards for video teleconferences. Over 25 live, interactive teleconferences have been produced, dealing with issues and offering professional development opportunities in a wide range of fields, such as higher education, international relations, science and technology and human resources. Programs produced and delivered by the university include:

USA-USSR Youth Summit Teleconference Series
A three-program series for public schools was distributed *live* by PBS and culminated in an international spacebridge between Soviet and American youth.

Managing your Company with Tom Peters
This live seminar featured the charismatic management consultant Tom Peters, author of the best-selling *Thriving on Chaos* and co-author of *In Search of Excellence.*

Writing Across the Disciplines: A Response to the Literary Crisis
This teleconference looked at the problem of writing deficiencies among college students and demonstrated a variety of ways that faculty could enhance their students' writing abilities while also stimulating higher level thinking skills.

AWARDS

USA-USSR Youth Summit Teleconference Series
- CASE Gold Medal for outstanding educational communications in the area of High School and College Partnerships
- Two TELECON VII awards: 1st Place for Distance Learning Program K-12, and 2nd Place for Best Direct Broadcast Application for a One-Time Special Event.
- AECT's Crystal Award for the most innnovative and creative telecommunications programming.

Education in the Year 2000
Instructor: Dr. Dwight W. Allen
with Eddyth N. Worley

Feb 16 Course Introduction
Endless Reform - Finding a New Vision for Education
Dr. Dwight W. Allen, presenter and host for the course, is Professor of Urban Education at Old Dominion University. Dr. Allen, best known for his advocacy in the 60's and 70's of such reforms as flexible scheduling differentiated staffing, multiple models of teacher education and micro-teaching, will discuss reform movements and initiatives of the 1980's with suggestions as to why they have been less than successful in meeting the projected needs of society.

Feb 23 Local Control and National Goals - The Politics of Educational Change
Special guests: Dr. Madeline Hunter, Educational Consultant and Adjunct Professor of Education, University of California at Los Angeles and Dr. Maurice Berube, Professor of Educational Leadership at Old Dominion University.

Feb 28 Administering the Schools
Special guest: Dr. Scott Thompson, Executive Director, National Association of Secondary School Principals.

Mar 2 Teachers and Staffing
Special guests: Dr. Ray Curry, Executive Director, American Association of School Personnel Administrators; Dr. Betty Jo Monk, Associate Professor of Education, Baylor University, and past President, Texas Association of School Personnel Administrators and Mr. Daniel W. Jackson, Jr., Director of Human Relations, Fairfax County Schools, and President, Virginia Association of School Personnel Administrators.

Mar 9 The Training of Teachers
Special guest: Dr. David Imig, Executive Director, American Association of Colleges of Teacher Education.

Mar 16 Curriculum
Special guest: Dr. Gordon Cawelti, Executive Director. Association for Supervision and Curriculum Development.

Mar 30 School Finance
Special guests: Dr. Van Spiva, Professor of Educational Leadership at Old Dominion University and John A. Crain, Assistant Superintendent, Dallas Independent School District.

Apr 6 Law and Accountability - Teachers, Schools, and Society
Special guest: Dr. Frank Kemerer, Professor of Educational Administration at the University of North Texas.

Apr 20 Education and the Forgotten Half
Special guest: Dr. Sam Halpern, Study Director of Youth in America's Future: The William T. Grant Foundation on Work, Family and Citizenship, and Dr. Yvonne Gonzales, Special Assistant to the Superintendent, Houston, Texas.

Apr 27 Alternative Structures and Patterns for Education
This session will be broadcast from the Joint Legislative Conference of the Council of Chief State School Officers and the National Association of State Boards of Education in Washington D.C. including interviews with participants.

May 4 A National System of Experimental Schools
This session will be broadcast from Indianapolis at the Conference of Model Schools, sponsored by Phi Delta Kappa; Dr. Howard Gardner, Professor of Education and co-director of Project Zero, Harvard Graduate School of Education.

May 11 The Leverage of Educational Technology
Special guests will include participants from the Conference on Education and Technology, sponsored by the International Technology Education Association. It will be broadcast from Indianapolis: Dr. Donald P. Lauda, Dean, School of Applied Arts and Sciences, California State University at Long Beach, and Dr. Walter B. Waetjen, President Emeritus, Cleveland State University. Dr. Robert Lucking, professor of Computer Education at Old Dominion University will also participate.

May 18 School Community Relations
Special guest to be announced.

May 23 American Education in a Global Context
Special guests Dr. Shapour Rassekh, Consultant to UNESCO, the International Bureau of Education in Paris, former board member of the International Institute for Educational Planning and Dr. Iraj Ayman, Director of the Institute of International Education and Development, Landegg Academy in Switzerland. This session will be broadcast from Geneva, Switzerland.

TI-IN UNITED STAR NETWORK.

REGISTRATION FORM
FOR

Education in the Year 2000
produced by
Old Dominion University

February 16 - May 23, 1990

REGISTRATION DEADLINE: February 9, 1990

School: ____________________

Address: ____________________

City, State, Zip: ____________________

Telepone Number: ____________________

I understand that this series may be videotaped adhering to the following restrictions:

Videotapes cannot be distributed
Videotapes will be erased before December 31, 1990

Person completing form: (Please Print)

____
Signature: ____________________
Title: ____________________
Date: ____________________

Enclosed is check #____ in the amount of $50.00 made payable to TI-IN United Star Network

Return this to:

TI-IN United Star Network
1000 Central Parkway North
Suite 190
San Antonio, TX 78232

OLD DOMINION UNIVERSITY
TECHNICAL INFORMATION

PROGRAM TITLE: *Paying for College: Exploring Alternative Financing Options*

PROGRAM DATE: April 2, 1990

TEST TIME: **C Band and Ku Band**

6:30 P.M.	-	7:30 P.M.	ET
5:30 P.M.	-	6:30 P.M.	CT
4:30 P.M.	-	5:30 P.M.	MT
3:30 P.M.	-	4:30 P.M.	PT

PROGRAM TIME:

7:30 P.M.	-	8:30 P.M.	ET
6:30 P.M.	-	7:30 P.M.	CT
5:30 P.M.	-	6:30 P.M.	MT
4:30 P.M.	-	5:30 P.M.	PT

Monday, April 2, 1990	C BAND	Ku BAND
SATELLITE:	WESTAR IV 99° W	SPACENET II 69° W
TRANSPONDER:	11, (6D) 3,920 MHz	20, 11,820 MHz
AUDIO FREQUENCY:	6.8 MHz	6.8 MHz

TROUBLE NUMBERS: **Before Program (804) 683-3172**
Test Time/During Program (804) 683-4909

TOLL FREE NUMBER FOR PARTICIPANT CALL-INS: 1-800-462-0959

This toll-free number is good only the day of the live program.

ANATOMY AND PHYSIOLOGY
ENROLLMENT ROSTER - 5/24/90

TOTAL: 221
Star Schools: 143
Regular: 78
49 SITES

School	City/State	Student
Ackerman Attendance Center	Ackerman, MS *	Coleman, Dennis
Akron High School	Akron, AL*	Jackson, Doretha Kennedy, Shelesia Paster, Pamela Webb, Kenneth Williams, Monica
Andrews High School	Andrews, NC	Cook, Amy Garcia, Nicholas Luther, Christel Tyson, Cheryl
Beecher City High School	Beecher City,IL *	Kremer, Pamela Moeller, Gena Steele, Kym Wetherell, Deric
Berry High School	Berry, AL *	Bozeman, Chris Cannon, Rebecca Dunn, Jason Geist, Aaron Hathcock, Blaine Hustead, Lori Kilgore, Crystal Kimbrell, Jon McCaleb, Brenton Parris, Elizabeth
Blackwell High School	Blackwell, TX	Ehl, Rebecca Hood, Amy Smith, Lee
Bruni High School	Bruni, TX	Hernandez, Jorge Salinas, Eduardo
Burney Jr/Sr HS	Burney, CA *	Meyer, Patti

*indicates a Star School Site

School	City/State	Student
Calhoun HS	Letohatchee, AL *	Colvin, Tameka
Carrollton HS	Carrollton, AL *	Goodson, Anthony Lee
		Grammer, Dana
		Noland, Maria
Choctaw Co.	Butler, AL *	Curtis, Daphne
		Fox, William
		Gibson, Kenneth
		Gilbert, Martha
		Jackson, Timini
		James, Demetris
		Martin, James
		McCain, Nikki
		McGrew, Keith
		Moody, John
		Nearor, Nicole
		Riley, LaTronda
		Ruffin, Katrina
		Thomas, Vicki
		Trayler, Jennifer
		Wilcox, Tonia
Christopher CHS	Christopher, IL *	Cesar, Tammy
		Dempsey, J.L.
		Moyers, Misty
		Payne, Teresa
Community Unit Dist 316	Warsaw, IL	Harms, Craig
		Keller, Buffy
		Lucey, Denise
		Turner, Greg

*indicates a Star School Site

ANATOMY AND PHYSIOLOGY
ENROLLMENT ROSTER - 5/24/90

School	City/State	Student
Como Pickton High	Como, TX	Anglin, Greg Carpenter, Rodney Cline, JoAnn Crowson, Rowdy Dodd, Cory Jumper, Alisa Jumper, Davis Newsom, Joel Sims, Toleia Stoker, Lisa (2/90) Williams, Sarah Killingsworth, L.
Dupo Senior HS	Dupo, IL *	Bollinger, Teri
Edneyville HS	Edneyville, NC	Marsh, Amy Redden, Tabitha
Etowah High School	Attalla, AL *	Battles, Jennifer Hall, Tabitha Jenkins, Stacey Ledlow, Stacie Means, Brent Ramsey, Angela Ripp, Harold Watson, Penny
Farmville Central	Farmville, NC *	Corbett, Amanda Coward, Zimmie Flanagan, Edwin (Mark) Lawrence, Tracy Mills, Laura
Fayette County HS	Fayette, AL *	Bowman, Jeremy Nalls, Christia Price, Lisa Richards, Amber Robertson, Brandi

*indicates a Star School site

School	City/State	Student
Gordo High School	Gordo, AL *	Anderson, Crystal Babb, Susan Caldwell, Chris Elmore, Kara Junkin, Paul Miller, David Mullenix, William Pate, Glenda Wallace, Paula
Gorman High School	Gorman, TX *	Browning, Gary Carter, John Frasier, Christi Gilmore, Brandon Sharp, Lance Warren, Justin
Grand Valley High School	Parachute, CO	Davis, Sherrie Hemann, Brooks Laughlin, Chris Lawrence, Mark
Griggsville School	Griggsville, IL *	Workman, Devin
Hermleigh ISD	Hermleigh, TX	Blair, April Crumly, Tisha Smith, Andrea
Hiwassee Dam HS	Murphy, NC	Bradberry, Michael Mashburn, June
Industry District 165	Industry, IL *	Jones, Jennifer Nissen, Becky
Ira ISD	Ira, TX	Johnson, Susan Luna, Anson McMullen, Craig

*indicates a Star School Site

ANATOMY AND PHYSIOLOGY
ENROLLMENT ROSTER - 5/24/90

School	City/State	Student
Jemez Springs SD	Jemez Springs, NM	Gachupin, Kimberly
Lakewood HS	Salemburg, NC*	King, Wendy Raynor, Carla
Linden High School	Linden, AL *	Bright, Sherry Bruno, Lyquinta Bryant, Sheikedia Ford, Johnny Gibson, Marvin C. Glover, Cassandra Hildreth, Wilmer Marshall, Natasha Minor, Sonja Powell, Darrell Richardson, Hope Rogers, Dionne Shields, Jem
Littlefield HS	Lumberton, NC *	Barnes, Toni Britt, Stephanie Britt, Tonya Cribbs, Toni Jackson, Amy Prevatte, Robert Soderena, Amy Vanzandt, Hillary Ward, Pamela
Louisburg High School	Louisburg, NC *	Ayscue, Karen Beasley, Lee Branch, Regina Cannady, Tiffany Evans, Sherwood Gardner, Donald Leonard, Kendra Overton, Angela Overton, Tracy Strickland, Kimberly Woodard, Donna Young, Brent

*indicates a Star School Site

ANATOMY AND PHYSIOLOGY
ENROLLMENT ROSTER - 5/24/90
Page 6 of 8

School	City/State	Student
Mirando City HS	Mirando City, TX	Cornejo, Rolando Lopez, Alex Natividad, Ramon
Newport High School	Newport, OR	Gettman, Melissa Homesley, Lisa Locklear, Misti
Pocahontas Co. Schools	Dunmore, WVa	Goode, George Harper, Paul Landis, James Shreve, Susan Workman, Jenny
Pope Community SD	Galconda, IL *	Evitts, Mark
Ragland High School	Ragland, AL *	Ball, Christal Bice, Marsha Burks, Sondra Cox, Andy Day, Erika Fitzpatrick, Consuelo McLaughlin, Tara Moore, Kimberly Schall, Crystal
Ridgway School District	Ridgway, CO	Bradburn, Kristi Brown, Jeff
Ripley Central	Ripley, NY *	Chiesl, Danielle Darling, Melanie Freed, Michael
Rosewood High School	Goldsboro, NC	Slaughter, Raymond
Rosman HS	Rosman, NC	Ashe, Shelby Buckner, Patricia Owen, Mary Thomas, Sonya

*indicates a Star School Site

School	City/State	Student
Sandoval Jr/Sr HS	Sandoval, IL *	Braddy, Dana Burton, Tammy DeWeese, Kathy Gregory, Darrell
South Brunswick HS	Southport, NC	Adams, Demond Downs, Holly Hall, Everette Harrison, Misti Monday, Kyle Poulk, Cynthia Sanderlin, Allen Shew, Sarah Watts, Ray Wong, Shonet
St. Clair Co HS	Odenville, AL *	Albright, Lesley Falls, Brandi Kinney,Cynthia Mitchell, Lisa
Thomasville High School	Thomasville, NC *	Bolton, Miranda Butt, Julie
Ukiah HS	Ukiah, OR *	Collar, Amy Collar, Brad
Union HS	Clinton, NC	Farmer, Wendy Fowler, Elsie Hudson, Alice Johnson, Shelecia Johnson, Yolonda Newkirk, Krista Norris, Scarlet Williamson, Vonita

*indicates a Star School Site

School	City/State	Student
Wellsburg Community	Wellsburg, IA	Doyen, Joseph
Yorkwood HS	Monmouth, IL *	Alexander, Tonya Davis, Colby

*indicates a Star School Site

JAPANESE I
ENROLLMENT ROSTER - 1/15/90

TOTAL: 233
Star Schools: 187
Regular: 46
# of Sites: 43

School	City/State	Student
Albin High School	Albin, WY	Fujinami, Todd
Alcorn Central HS	Glen, MS *	Farris, Alton Fowler, Joshua Gray, Mike Gunther, David Jilek, Tonya Rhodes, Keith Scott, Rob
Alexander Public Schools	Alexander, ND	Fjelstad, Sara
Amanda Elzy HS	Greenwood, MS *	Conner, Jimmy Hemphill, Bruce Pulley, Riley
Biggersville HS	Corinth, MS *	Bobbitt, Wendy Horn, Susan Jones, Georgana Miller, Mary Rowsey, Kim
Bunn High School	Bunn, NC *	Bartholomew, William Bowyer, Jennifer Dent, Dave Tant, Donna Tew, Holly
Burney Jr/Sr High	Burney, CA *	McCalley, Jennifer
Chippewa Hills HS	Remus, MI	Robinson, Kathryn

* indicates a Star School Site

School	City/State	Student
Choctaw Co HS	Butler, AL *	Bishop, Kefalari Coody, Tara Crowell, Odis Hampton, Reginald Hancock, Kimberly Havard, Trishia Hollister, Dinah Irby, Patricia Johnson, Michael Rosborough, Stephanie Ruffin, Sharon Strickland, Tanya Watson, Kelly
Christopher Community HS	Christopher, IL *	Chapman, Lisa Furlow, Angela Greenwood, Marcy Houghland, Rich Johnson, Michael Jones, Kerry
Crestwood HS	Crestwood, OH	Karm, Gayle
Dupo High School	Dupo, IL *	Coff, Katherine Ertle, Marichiel
Flora High School	Flora, IL	Buckley, Mandy Colclasure, Scott Girdler, Eva King, Kerri Lake, Derek Peters, Kari Stringer, Stephen Webb, Jodie West, Robbie
Gilpin County SD	Blackhawk, CO	Avram, Johnathon Robertson, Brian
Greenville HS	Greenville, MS *	Barnes, Stephanie Walls, Sala

* indicates a Star School Site

School	City/State	Student
Greenwood HS	Greenwood, MS *	Clanton, Roger Coleman, LaTonya Gooden, Demetrius Nunn, Janice Reed, Sherod Tullos, Jimmy
Hale County High School	Moundville, AL *	Garner, Tina Hewill, Christie Jones, Billy Kelley, Christy Kynard, Matthew Lester, Tony Lott, Christopher Smith, Jason Siavelis, Charles Wedgeworth, Nathaniel
Hilmar High School	Hilmar, CA *	Heilman, Jim Vargas, Sterling
Ingalls High School	Ingalls, KS	Little, Jennifer McDonald, Kathy
John Essex High School	Demopolis, AL *	Brown, Charles Jackson, Michael Rembert, Andrew Simon, Alicia Smith, Mesha Thomas, Rodney Vaughn, Veronica Williams, Samantha Worthy, Lakeithia

* indicates a Star School Site

School	City/State	Student
Keith High School	Orville, AL *	Blevins, Do[illegible]a Cobb, Santaush Hardy, Andrea Scott, Ernest Simmons, Helen
La Harpe High School	LaHarpe, IL *	Logan, Jill
Livingston High School	Livingston, AL *	Abrams, Latonia Brown, Kim Carter, Pamela Culbert, Bobby Dykes, Lisa Grant, Derick Grant, Eric Jackson, Tracy Martin, Rickitta Paris, Wendell Sims, Chris Thomas, Janice Williams, Angela
Louisburg High School	Louisburg, NC *	Perry, Crystal Iwasaki, H.
Louisville HS	Louisville, MS *	Crowder, Kendralyn Ford, Catherine Frazier, Shalonda Gillis, Tina Hall, Vernita Hayes, Crandall Haynes, Demondes Hibbler, Cartessia Hornesburger, Daralyn Jernigan, Pamela Johnson, Moniquea Matthews, Jason Pittman, Alethea Quinn, Sonja Smith, Bruce Triplett, Karmika Wilson, Katrina

*indicates a Star School Site

School	City/State	Student
Madras High School	Madras, OR *	Buslach, Kimi Chester, Justin Henrikson, Shahin Stevenson, Craig Supanchick, Robbie Wickham, Juanita
Medina High School	Medina, TX *	Flores, George Martin, Tony
Modoc High School	Alturas, CA *	Trent, Katherine
Northeast Jones HS	Laurel, MS *	Aleksines, Heath Barnes, Demetrius Bergeron, Kent Brownlee, S.M. Buckley, Thomas Buxton, Robert Clark, Michael Coble, John Culpepper, Stephen Johnson, Stephen Moody, Maketa Morgan, Latonya Pearson, Portia Russ, Keith Ward, Sean Wood, Jennifer Yarbrough, Bryan
Oakville High School	Oakville, WA *	Brandon, Becky Young, Rebecca
Olive Branch HS	Hernando, MS *	Berryhill, Brenda Dirlam, Stephanie Hall, Stacey McKnatt, Brandy Mobley, Catherine Reid, Natalie Williams, Angela

* indicates a Star School Site

JAPANESE I
ENROLLMENT ROSTER - 1/15/90

School	City/State	Student
Pickens County HS	Reform, AL *	Worrell, Susan
Pope Co. HS	Golconda, IL *	Jones, Laura
Princeton City Schools	Princeton, OH	Comstock, Craig
		Herlihy, Sarah
		Hughes, Bradlee
		McCoy, Vincent
		Sato, Hikari
		Simmons, Paul
		Ward, Amy
Rosman High School	Rosman, NC	Chapman, Akella
		Chappel, Jason
		Gosen, Amy
		Ice, Jason
		Lorenz, Jason
		McCall, Brian
		Powell, Susan
		Whitmire, Mamie
SD Lee High School	Columbus, MS *	Davis, Nicole
		Owens, Chastity
		Rickert, Ryan
		Tabb, Angela
South Jones HS	Ellisville, MS *	Dukes, Marcus
		Johnson, Eric
		Lassiter, Kelli
		Moore, Melissa
		Nobles, Zack
		Sullivan, Patrick
		Walters, Andrew
		Weems, Roslynn
		Williamson, Marsha
		Woodruff, Amanda
TL Weston High School	Greenville, MS *	Boxley, Kimberly

* indicates a Star School Site

JAPANESE I
ENROLLMENT ROSTER - 1/15/90

School	City/State	Student
Tupelo High School	Tupelo, MS*	Ayers, Heather
		Barclay, Thom
		Campbell, Kristi
		Johnson, Ashley
		Nelson, Dana
		Nichols, Patricia
		Perry, Candy
		Russo. Elizabeth
Ukiah High School	Ukiah, OR *	Collar, Amy
		Collar, Brad
		Collar, Cheryl
		Gudmundson, Niki
Waldport High School	Waldport, OR	Boese, Delda
		Brown, Jenny
		Flanders, Stratos
		Harwood, Kimberly
		Harwood, Kris
		Shipman, Tim
Warren County Sr HS	McMinnville,TN	Baker, Amy
		Barnes, Stephanie
		Crawford, Mary
		Lewis, Amy
		Lorance, Lori
		Newby, Robert
		Walker, Twanelle
West Jones HS	Laurel, MS *	Barlow, Shane
		Blakeney, Stephen
		Cockrell, Tate
		Daniels, Carla
		Dawson, Tommy
		Evans, Mary
		Henson, Joe
		Hilburn, Bill
		Hutto, Dameon
		McNair, David
		Montgomery, Heather
		Mosley, Kiona
		Pickering, Jason
		Scruggs, Robby
		Smith, Greg
		Smith, Rhonda

* indicates a Star School Site

School	City/State	Student
West Lauderdale Attendance Center	Collinsville, MS *	Beeman, John Cottrill, Charles Kinard, S. Ross Scott, Charles David Seymore, Marcus

* indicates a Star School Site

REGISTERED PARTICIPANTS

COURSE: ***FOREIGN LANGUAGE IN THE ELEMENTARY SCHOOL***
A WORKSHOP IN CURRICULUM AND METHODOLOGY

DATE: **JUNE 13, 15, 20, 22, 27, AND 29, 1989**

TIME: **TUESDAYS & THURSDAYS** **12:45PM - 4:00PM CDT**
CHANNEL 44

NAME	SCHOOL	CITY/STATE
Debbie Baglia Janet Hachen Peggie Smith Ethan Williamson Carole Yost	Albemarle H.S.	Albemarle, NC
Teresa V. Walsh	Alexander Central H.S.	Taylorsville, NC
Joe Litaker Allison Martin Keith Shumate	Anson County Schools	Wadesboro, NC
Jennifer Stambaugh	Astoria S.D. #1	Astoria Dist #1, IL
Vilma Acosta Beverly Adams Gi Gi Boyette Cathy Moore Carolyn Rose Robin Schultheiss	Beaufort County Schools	Washington, NC
Glenda Williams	Beaver Creek H. S.	West Jefferson, NC
Patricia Atkinson Elmetta Bullard Lori McLeod Claire Nelson Anna Ruth Donald Schwidde Carolyn Scoggins Sue Shaw	Bladen County Board of Education	Elizabethtown, NC
Lorna Marks	Blue Ridge School/Jackson Co.	Glenville, NC

NAME	SCHOOL	CITY/STATE
Marianne B. Gore	S. Brunswich H.S.	Brunswich NC
	Burke County Public Schools	Burke County, NC
Pat Blair Rosemarie Carney Irene Dalmau Betty Early Shirley McGlilen Teresa Shoun	Caldwell County Schools	Lenoir, NC
Lilia Martinez Judy Clyma Ana Schleifer Judy Saucrant Jamie LeSavage Jeri Meigs Lisa Jenkins Lydia Ortiz Estela Hernandez Linda Tootle Sylvia Thomas Laurie Tisdale	Camp Lejeune Dependent's School	Camp Lejeune, NC
	Catawbal Schools	NC
Anne Volkman	Central Clinton H.S. Community Schools	Dewitt, IA
Ella Conrad Sherri Gardner Francy Soules Myrtle Starnes Deborah Suttles	Columbus County Schools	Whiteville, NC
	Cumberland County Schools	Fayetteville, NC
Geri Smiegen Julia Scerbo Sheila Clendenning	Currituck County Schools Site = Knapp Jr. High	Currituck, NC
	Durham County	Durham, NC
Karen Gilbert Marina Bass Alice Brown	Eden City Schools Site = Rockingham Senior H.S.	Eden, NC
Ann Cobb Jane Gurley Richard Hinton	Edgecombe County Schools	Tarboro, NC

NAME	SCHOOL	CITY/STATE
Bob Robley	Educational Service Center, #16	Belleville, IL
Mary Lou Herring	Fairmont City Schools	Fairmont, NC
	Franklin County Schools	Franklin, NC
Taping program	Gates County	Gatesville, NC
Kathryn L. Fox	Graham County School	Robbinsville, NC
Nathan A. Caroon	Grandy Primary School	Camden, NC
	Greensboro Public Schools	Greensboro, NC
Linda G. Kaiser JoAnn Hart	Guilford County School	Greensboro, NC
Heloise Williams	Halifax County Schools	NC
Juanita Gutierrez Joan Adams Mariana Tatos Martha Lockaney Tracie J. Johnson Gerald Smith	Harnett Co. Board of Education	Lillington, NC
	Haywood County Schools	Waynesville, NC
Maria D. Ashbrook Della R. Buhl Jeanne Michelle Burnett Marie H. Farr Charlotte a. Osterman Elizabeth A. Pride	Hendersonville Board of Education	Hendersonville, NC
Margaret Hampton Teresa Jenkins LaVerne Espy	Hertford County Schools	Winton, NC
Eritza Vellejo Alicia Czajkowski Nancy McNeill Gloria Hawks	Hoke County Schools	Raeford, NC
Vergie Sorrells	Jackson County	Sylva, NC
Marie K. Cintron Claudia Graham Edward Parrish Marcella Willaford	James Kenan H.S.	Warsaw, NC

NAME	SCHOOL	CITY/STATE
Delores Bullock Robert Dowling Ann Dowling Fe Maria Finch Sandra Fritz Elissa Harbinson Rosalind Jenrette Barb Modinor-Capps Marci Perrin Emily A. Sockell Ann Stephenson Margaret Sutton Geraldine Sykes Lucy Watson Cathy West	Johnston County Schools	Smithfield, NC
Lisa Bowling Oliver Howell	Lee County Schools	Sanford, NC
Lynn Mack* Jennifer Edwards	Lexington City School	Lexington, NC

*Please mail information to: Ray Bates, Technical Coordinator, Lexington City Schools, 1010 Fair Street, Lexington, NC. 27292

NAME	SCHOOL	CITY/STATE
Theresa Marming Jim O'Donnell Fernande Silverthorn Sandra Jones Linda Robertson	Martin County Schools	Willisamston, NC
Kathy Johnson	Mattamuskett H.S.	Swan Quarter, NC
Laura Lee Rorem Barbara Dorton	Moore County Schools Site = Union Pines - Cameron	Carthage, NC
Barbara Boyd Edwina Whitehead	Mt. Airy City Schools	Mt. Airy, NC
Kay Bolt Carol Brinkley Pat Brower Dianne Brown Rhonda Carter Amy Johnson Debra Lanham Mary Mann Rocio Marcum Agnes Page Libby Parker Jane Parrish Lauren Rogers Rosa Ross	Nash County School	Nashville, NC

NAME	SCHOOL	CITY/STATE
Barbara Baldwin Mildred Rowland Ollie Lunsford	Nantahala School	Topton, NC
Betty White Baroara Sloop Loulle Henderson Martha Edwards Barbara Starnes Marla Connor	New Bern-Craven County Schools	New Bern, NC
Dale Wallace	Newton-Conover City Schools	Newton, NC
Susan Jackson Gloria Herring Julie Ward Irene Lucas Ginger Lyell Barbara Gonzales Lamiece Spencer Barbara Mike Mary Barefoot John Bryan	New Hanover County Schools	Wilmington, NC
(10 people)	North Gaston H.S.	Gastonia, NC
Georgette Kimball Cynthia Lloyd Nathornia Deloatch	Northampton County Schools	Jackson, NC
Ruth Toth Karen Lovejoy	Ocracoke School	Ocracoke, NC
Carmen Blakewood Elaine Day Carla Dejoie Shirley Dunn Jane Idyle Sara Maisel Debbie Santiago Basma Thompson Barbara Tyler Ellie Webb	Onslow County Schools	Jacksonville, NC

NAME	SCHOOL	CITY/STATE
May Coates Karin Griffiths Josephine Harris Josephine L. Harris Diana Levy George Ann McCay George Ann McCay Carol Orringer Carlos Perea Lee Powell Mari Satterle Nancy Sorenson Catherine Williams	Orange County Schools	Hillsborough, NC
Cornelia Bond	Pamlico County Schools	Bayboro, NC
Lisa Jarman Mary Kimbrough Eunice Ramsey Terry Turner Diana Broyles Greta Jeffers Chuck Oakley	Person County	Roxboro, NC
Denise L. Curtis*	Pinebrook County	Advance, NC

*Please send materials to: Denise Curtis, c/o Betty E. West, Director of Personnel, Davie County Schools, 220 Cherry Street, Mocksville, N.C. 27028

	Pitt County Schools	Pitt County, NC
Marilyn Clayton Barbara Harrel Roger Pareja Julia Spivey Beauie Withrow	Randolph County Schools	Asheboro, NC
Pattie Bracey Deloris Council Allene Gane Sandra Graham Adele Hall Chip Hennecy Diane Oxendie Kim Raimo	Robeson County Schools	Lumberton, NC
Marjorie Whitlock Myrna Strickland Glyn Petree Edie Burgin	Scotland County School	Laurinburg, NC
Elaine A. Zerhe	South Brunswick	Brunswick County,NC
Gwedolyn Nergart G. Fornasier Lisa Harris	Stokes County Schools	Danbury, NC

NAME	SCHOOL	CITY/STATE
Julie Hamilton Jacqueline Sykes Linda Roberts	Thomasville H.S.	Tomasville, NC
Dale Wallace	Thorton Elementary/Newton-Conover	Newton, NC
C. Melissa Boyd Susan Jones Gail Lanier Connie Paschall	Topsail Jr/Sr High	Hampstead, NC
Charlotte Galloway Joanne Gordon Betty Hooper Winnifred Finnegan Chris Payne	Transylvania County Schools	Brevard, NC
Nancy Hoekstra	Trona H.S.	Trona, CA
Elizabeth H. McCallister	Tryon H.S.	Tryon, NC
Susan Aldrich Nancy Martin Margene Clark Eloise J. King Martin D'Anne Rehder	Uklah Middle School	Uklah SD, 80-R, OR
Kory Massey*** Carol Burbank Carol Burroughs Michelle Turner Susan Ballard Gloria Price	Union County Schools	Monroe, NC

**Please mail information to: Jo Nell McCain, Gail Latham, Union County Schools, 500 N. Main Street, Suite 700, Monroe, N.C. 28110

NAME	SCHOOL	CITY/STATE
Magnolia Williams Donald Wideman Marcella Horney Marilyn Bendar	Vance Senior H.S.	Henderson, NC
Sonia Torres Nancy Ferguson Maria Smith Lisa Ferrando Tim Hart	Wake County School	Raleigh, NC

NAME	SCHOOL	CITY/STATE
Andrea Malpes Gwen Andrews Jean Tallercio Sherry Stafford Wendy Hicks Kristy Bailey Fran Perlow Linda Harper Ann Price Doris Smith	Wayne County Schools	Goldsboro, NC
Armanda Rooks Namie Owens	Whiteville City Schools	Whiteville, NC
	Columbus County Board of Education	Whiteville, NC
Jeral Spears Amy Burchins Walter Broyhill Garland Hill	Wilkes County Schools	Wilkesboro, NC
Donald R. Franks Ann Howell Ann Parris Martha Pierce Beverly Swart Donna Tesh Gloria Vazquez Barbara Walker Chantal Whelan Raymond Whelan	Wilson County School	Wilson, NC
Lias Allen Marta Canas Ann Chipman Tevera Dahmer Jeannette Flowe Betty Griffith Betty Griffin Claudette Jarret Barbara Johnson Awilda Neal Melanie Neal Lateefah Razzak Brigitte Wolcszyn Bonnie Zeithers	Winston-Salem/Forsyth County Schools	Winston-Salem, NC
Carol Smith	Whitmore Lake H.S.	Washtenaw S.D., MI
	Yadkinville County Schools	Yadkinville County, NC

June 19, 1989

ATTACHMENT A	List of Utilization Specialists
ATTACHMENT B	Star Schools Brochure
ATTACHMENT C	Operational Guidelines
ATTACHMENT D	TI-IN Network Newsletter
ATTACHMENT E	Newspaper and Magazine Articles
ATTACHMENT F	Questions and Answers about Star School, List Specifying Hardware and Programming Award to Star School Recipients, Year One and Year Two Programming
ATTACHMENT G	List of Star School Sites by State
ATTACHMENT H	Illinois State Board of Education and Western Illinois University Application and Assurances
ATTACHMENT I	Description of Programming Provided by Partners
ATTACHMENT J	Enrollment in Courses
ATTACHMENT K	List of Inventory
ATTACHMENT L	Evaluations
ATTACHMENT M	Scholarships

TI-IN UNITED STAR NETWORK.

Star School Sites Course Enrollment for 1990-91

Course	State	Site	Enrollment	Totals
Anatomy	AL	Selma	2	
Anatomy	AL	Demopolis	1	
Anatomy	AL	Calhoun	1	
Anatomy	IL	Christopher Community	2	
Anatomy	IL	Sandoval Jr/Sr	3	
Anatomy	IL	Bluffs	2	
Anatomy	IL	Harrisburg	1	
Anatomy	NC	Thomasville	2	
Anatomy	NC	Richlands	2	
Anatomy	NC	Farmville	2	
Anatomy	NC	Littlefield	10	
Anatomy	TX	Central Heights	8	
Anatomy	TX	Benavides	2	38
AP English	IL	Wyanet	2	
AP English	IL	Gorham	3	
AP English	IL	Beecher City	9	
AP English	IL	Western	7	
AP English	IL	Cairo	1	
AP English	IL	Washington	3	
AP English	IL	Calhoun	6	
AP English	IL	Illini	3	
AP English	IL	Avon	1	
AP English	IL	Pleasant Hill	3	
AP English	IL	Vienna	6	
AP English	IL	Northwestern	4	
AP English	IL	Witt	5	
AP English	MS	Louisville	12	
AP English	NC	Midway	1	
AP English	NY	Ripley	1	
AP English	SD	Cheyenne Eagle Butte	3	
AP English	TX	Hamilton	1	
AP English	TX	Goldburg	1	
AP English	TX	Presidio	3	
AP English	TX	Saltillo	2	
AP English	TX	Carrizo Springs	5	82
Astronomy	AL	Pickens	3	
Astronomy	AL	Pickens	3	
Astronomy	CA	Modoc	2	
Astronomy	CA	Herlong	9	
Astronomy	CA	Happy Camp	8	
Astronomy	CA	Burney Jr/Sr	5	
Astronomy	IL	Dupo	5	
Astronomy	IL	Northwestern	1	
Astronomy	IL	Benton Cons.	3	
Astronomy	IL	Wyanet	4	
Astronomy	IL	Western	1	
Astronomy	IL	Astoria	4	
Astronomy	IL	Bluffs	2	
Astronomy	IL	Harrisburg	4	
Astronomy	IL	Pleasant Hill	4	

Astronomy	IL	Yorkwood	4	
Astronomy	MS	Byrum	2	
Astronomy	MS	Caldwell	6	
Astronomy	NC	Richlands	5	
Astronomy	NC	Littlefield	23	
Astronomy	NC	Lakewood	10	
Astronomy	TX	Covington	2	
Astronomy	TX	Deweyville	1	
Astronomy	TX	Vega	2	
Astronomy	TX	Central Heights	13	
Astronomy	TX	Presidio	1	127
Elem Analysis	CA	Happy Camp	5	
Elem Analysis	IL	Cairo	1	
Elem Analysis	MS	Noxapater	5	
Elem Analysis	MS	Utica	5	
Elem Analysis	NC	Lakewood	1	
Elem Analysis	NC	Midway	14	
Elem Analysis	NC	Hobbton	2	
Elem Analysis	NM	Corona	2	
Elem Analysis	OR	Ukiah	1	
Elem Analysis	TX	North Hopkins	7	
Elem Analysis	TX	Aquilla	1	
Elem Analysis	TX	Covington	2	
Elem Analysis	TX	Penelope	3	
Elem Analysis	TX	Central Heights	3	
Elem Analysis	TX	Gorman	2	54
Elem Spanish	CA	Pliocene	7	
Elem Spanish	IL	Christopher Community	10	
Elem Spanish	TX	Campbell K-12	7	
Elem Spanish	TX	Central Heights	15	39
French I	CA	Dos Palos	2	
French I	CA	Hilmar	21	
French I	CO	Ellicott	1	
French I	IL	Illini	4	
French I	IL	Camp Point	2	
French I	IL	Vienna	1	
French I	IL	Christopher Community	4	
French I	IL	Unity	2	
French I	IL	Astoria	1	
French I	IL	Wyanet	5	
French I	MS	Leflore	3	
French I	MS	Raymond	9	
French I	NC	South Robeson	7	
French I	ND	White Shield	1	
French I	NY	Ripley	1	
French I	OR	Ukiah	1	
French I	TX	Penelope	2	
French I	TX	Presidio	4	
French I	TX	Apple Springs	1	
French I	TX	Crockett	26	
French I	TX	Covington	2	
French I	TX	Central Heights	10	
French I	TX	Tornillo	5	
French I	TX	Ingram	2	
French I	WA	Oakville Jr/Sr	6	123
French II	AL	Pickens County	1	

French II	CA	Trona	2	
French II	CA	Burney	3	
French II	CA	Herlon	3	
French II	IL	Pittsfield	2	
French II	IL	ROWVA	4	
French II	IL	Illini	2	
French II	MS	Byrum	5	
French II	NC	North Stokes	7	
French II	NC	South Robeson	10	
French II	SD	Cheyenne Eagle Butte	2	
French II	TX	Crockett	4	
French II	TX	Jayton-Girard	2	
French II	TX	North Hopkins	1	
French II	TX	Presidio	1	
French II	TX	Central Heights	7	
French II	TX	Loop	4	60
German I	CA	Dos Palos	3	
German I	CA	Pliocene	1	
German I	CA	Trona	4	
German I	CA	Burney Jr/Sr	1	
German I	IL	Harrisburg	3	
German I	IL	Valmeyer	3	
German I	IL	Dupo	3	
German I	IL	Westmer	1	
German I	IL	Western	2	
German I	IL	Christopher Community	4	
German I	IL	Dallas City	1	
German I	IL	Brown County	3	
German I	IL	Northwestern Jr/Sr	1	
German I	IL	West Pike Comm.	1	
German I	MS	Kossuth	2	
German I	MS	Byrum	10	
German I	NC	Thomasville	2	
German I	NC	Louisburg	4	
German I	NC	Charles B. Aycock	2	
German I	TX	Carrizo Springs	5	
German I	TX	Newcastle	8	
German I	WA	Oakville Jr/Sr	5	69
German II	CA	Trona	3	
German II	CA	Dos Palos	1	
German II	IL	Unity	1	
German II	IL	Roseville	1	
German II	IL	Western	2	
German II	MS	Natchez	1	
German II	TX	Knippa	2	
German II	TX	Cotulla Jr/Sr	4	
German II	WA	Oakville Jr/Sr	1	16
Japanese I	CA	Hilmar	4	
Japanese I	CA	Trona	1	
Japanese I	IL	La Harpe	1	
Japanese I	IL	Benton Cons.	2	
Japanese I	IL	Christopher Community	1	
Japanese I	MS	Leflore	7	
Japanese I	MS	Amandy Elzy	3	
Japanese I	MS	Pascaguola	6	
Japanese I	OR	Ukiah	1	

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Japanese I	TX	Saltillo	2	
Japanese I	TX	Central Heights	1	
Japanese I	TX	Poolville	1	
Japanese I	TX	Pearsall	1	
Japanese I	TX	Tornillo	10	
Japanese I	WA	Oakville Jr/Sr	2	
Japanese I	OR	Madras	4	47
Latin I	IL	West Pike	3	
Latin I	IL	Illini	3	
Latin I	IL	Christopher Community	5	
Latin I	IL	Harrisburg	2	
Latin I	IL	Pleasant Hill	2	
Latin I	MS	Meridian	11	
Latin I	NC	Charles B. Aycock	2	
Latin I	NC	Richlands	5	
Latin I	NC	Farmville	6	
Latin I	NC	Bunn	12	
Latin I	TX	Ingram Tom Moore	1	
Latin I	TX	North Hopkins	1	53
Latin II	NC	Thomasville	4	
Latin II	NC	Louisburg	6	
Latin II	NC	Farmville	1	11
Marine Science	AL	Selma	1	
Marine Science	CA	Herlong	7	
Marine Science	CA	Burney Jr/Sr	5	
Marine Science	CA	Modoc	2	
Marine Science	CA	Happy Camp	7	
Marine Science	IL	Pope County	2	
Marine Science	IL	Dupo	5	
Marine Science	IL	Wynnet	4	
Marine Science	IL	Bluffs	6	
Marine Science	IL	Camp Point	1	
Marine Science	IL	Yorkwood	2	
Marine Science	IL	Astoria	3	
Marine Science	IL	Benton Cons.	1	
Marine Science	IL	Harrisburg	5	
Marine Science	IL	Pleasant Hill	4	
Marine Science	MS	Caldwell	5	
Marine Science	NC	Littlefield	23	
Marine Science	NC	Richlands	5	
Marine Science	NC	Lakewood	10	
Marine Science	TX	Presidio	1	
Marine Science	TX	Aquilla	4	
Marine Science	TX	Central Heights	1	
Marine Science	TX	Covington	4	
Marine Science	TX	Pearsall	1	
Marine Science	TX	Vega	2	
Marine Science	MS	Byrum	1	112
Physics	AL	Selma	1	
Physics	IL	St. Anne Comm.	8	
Physics	TX	Penelope	3	
Physics	TX	Presidio	1	13
Psychology	AL	Selma	1	
Psychology	AL	Calhoun	6	
Psychology	IL	Morrisonville	5	
Psychology	IL	La Harpe	1	

Psychology	IL	Aledo	5	
Psychology	IL	Valmeyer	5	
Psychology	IL	Southeastern	6	
Psychology	IL	Gorham	5	
Psychology	IL	Harrisburg	1	
Psychology	IL	Yorkwood	6	
Psychology	IL	Pleasant Hill	3	
Psychology	IL	Northwestern	2	
Psychology	IL	Shiloh	6	
Psychology	NC	Hobbton	4	
Psychology	NC	Lakewood	8	
Psychology	NY	Ripley	4	
Psychology	TX	Hedley	5	
Psychology	TX	Maud	4	
Psychology	TX	Deweyville	11	
Psychology	TX	D'Hanis	18	
Psychology	TX	Bosqueville	3	
Psychology	TX	Central Heights	1	
Psychology	TX	Medina	1	
Psychology	TX	Poolville	2	
Psychology	TX	Benavides	8	
Psychology	TX	Vega	3	124
Sociology	AL	Selma	1	
Sociology	AL	Calhoun	6	
Sociology	IL	Harrisburg	1	
Sociology	IL	Pleasant Hill	6	
Sociology	IL	Southeastern	6	
Sociology	IL	Shiloh	7	
Sociology	IL	Camp Point	3	
Sociology	IL	Morrisonville	5	
Sociology	IL	Yorkwood	6	
Sociology	IL	Gorham	3	
Sociology	IL	Aledo	3	
Sociology	NC	Hobbton	4	
Sociology	NC	Lakewood	8	
Sociology	NY	Ripley	6	
Sociology	TX	Medina	1	
Sociology	TX	Maud	3	
Sociology	TX	Hedley	5	
Sociology	TX	Benavides	8	
Sociology	TX	Poolville	1	
Sociology	TX	Presidio	1	
Sociology	TX	Vega	8	
Sociology	TX	D'Hanis	8	
Sociology	TX	Bosqueville	3	103
Spanish I	AL	Calhoun	22	
Spanish I	AL	Central High School	44	
Spanish I	AL	Pickens County	2	
Spanish I	CA	Trona	8	
Spanish I	IL	Vienna	4	
Spanish I	IL	Western	21	
Spanish I	IL	Brown County	11	
Spanish I	IL	Avon	2	
Spanish I	IL	Christopher Community	4	
Spanish I	IL	Thompsonville	3	
Spanish I	IL	Liberty Hill	3	

Spanish I	IL	Meridian	4	
Spanish I	MS	Amanda Elzy	21	
Spanish I	MS	Biggersville	5	
Spanish I	MS	Alcorn Central	11	
Spanish I	MS	Leflore	9	
Spanish I	NC	North Edgecombe	16	
Spanish I	NM	To'Hagiilee-He	16	
Spanish I	OR	Ukiah	5	
Spanish I	TX	Bynum	7	
Spanish I	TX	Covington	8	
Spanish I	TX	McLeod	4	
Spanish I	TX	Deweyville	5	
Spanish I	TX	Apple Springs	5	
Spanish I	TX	Goldburg	5	
Spanish I	TX	Poolville	10	
Spanish I	TX	D'Hanis	7	
Spanish I	TX	Martinsville	8	
Spanish I	TX	Hamilton	3	
Spanish I	TX	Union Hill	3	
Spanish I	TX	Kennard	4	
Spanish I	TX	Newcastle	15	
Spanish I	TX	Prairie Valley	1	
Spanish I	TX	Central Heights	19	
Spanish I (8)	AL	Selma	1	
Spanish I (8)	AL	Calhoun	1	
Spanish I (8)	AL	Central	40	
Spanish I (8)	AZ	Hopi	9	
Spanish I (8)	CA	Happy Camp	10	
Spanish I (8)	IL	Southeastern	10	
Spanish I (8)	IL	Christopher Community	1	
Spanish I (8)	IL	Liberty Hill	3	
Spanish I (8)	IL	Western	15	
Spanish I (8)	IL	Calhoun	1	
Spanish I (8)	MS	Leflore	18	
Spanish I (8)	MS	Amanda Elzy	19	
Spanish I (8)	TX	Kennard	1	
Spanish I (8)	TX	Loop	10	
Spanish I (8)	TX	Central Heights	1	
Spanish I (8)	TX	Penelope	5	
Spanish I (8)	TX	Hedley	4	464
Spanish II	AL	Central	9	
Spanish II	AL	Calhoun	9	
Spanish II	CA	Burney Jr/Sr	1	
Spanish II	IL	Hardin County	1	
Spanish II	TX	Central Heights	8	
Spanish II	TX	Goldburg	4	
Spanish II	TX	Covington	5	
Spanish II	TX	Bosqueville	6	
Spanish II	TX	Martinsville	4	
Spanish II	TX	Bynum	1	
Spanish II	TX	Jayton-Girard	4	
Spanish II	TX	Deweyville	1	
Spanish II	TX	Northside	8	
Spanish II	TX	Coolidge	13	
Spanish II	TX	McLeod	2	
Spanish II	TX	Maud	1	

Spanish II	TX	Poolville	6	
Spanish II	TX	Newcastle	2	
Spanish II (4)	CA	Pliocene	1	
Spanish II (4)	IL	Liberty Hill	1	
Spanish II (4)	IL	Vienna	3	
Spanish II (4)	MS	Utica	2	
Spanish II (4)	MS	Kossuth	3	
Spanish II (4)	TX	Poolville	3	
Spanish II (4)	TX	Penelope	1	
Spanish II (4)	TX	Deweyville	1	
Spanish II (4)	TX	Northside	1	
Spanish II (4)	TX	Maud	5	
Spanish II (4)	TX	Central Heights	7	
Spanish II (4)	TX	Covington	5	118
Trigonometry	CA	Happy Camp	6	
Trigonometry	IL	Cairo	1	
Trigonometry	MS	Utica	5	
Trigonometry	NC	Midway	14	
Trigonometry	NC	Hobbton	2	
Trigonometry	NC	Lakewood	1	
Trigonometry	NM	Corona	2	
Trigonometry	TX	Covington	3	
Trigonometry	TX	Aquilla	1	
Trigonometry	TX	Gorman	2	
Trigonometry	TX	Central Heights	3	
Trigonometry	TX	North Hopkins	7	
Trigonometry	TX	Penelope	3	50
			1703	1703

RESOURCE CODE	RESOURCE NAME	WHO OWNS	SERIAL NUMBER	CART NUMBER	STAR NUMBER	ASSET NUMBER	INSTALLATION DATE	LAST MAINT
5939	-A.L. JOHNSON HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	747	747	1070		05/31/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813696	747	1871		05/31/1990	
00332	TEKNIKA VCR 882	C	D48810404	747	1873		05/31/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0210944	747	1878		05/31/1990	
00600	NUMONICS DIGITAL TABLET	C	300127	747	1879		05/31/1990	
01100	Ku RECEIVER (GI)	C	MAC4020136762	747			05/31/1990	
6089	-ABBOTT HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	880	880	3190		05/16/1990	
00231	TEKNICA MONITOR TJ2077	C	C50814031	880	3191		06/15/1990	
00312	TOSHIBA VCR M-6007	C	21631414	880	3193		06/15/1990	
00421	PRINTER SEIKOSHA SP-1600A1	C	0210468	880	3190		06/15/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	880			10/17/1990	
00600	NUMONICS DIGITAL TABLET	C	300318	880	3199		06/15/1990	
01100	Ku RECEIVER (GI)	C	AC3120118975	880	2306		06/15/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001435	880			07/26/1990	
3067	-ACKERMAN ELEMENTARY SCHOOL							
00100	AUDIO VIDEO UNIT	C	1008	1008	3774		06/01/1990	
00211	TOSHIBA MONITOR CF2028A	C	18415553	1008	3775		06/01/1990	
00317	TOSHIBA VCR M-5483	C	18634585	1008	3777		06/01/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0205816	1008	3782		08/01/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1008			10/12/1990	
00600	NUMONICS DIGITAL TABLET	C	0700489	1008	3783		06/01/1990	
01202	C band RECEIVER, TRACKER PLUS	C	892203586	1008	3780		06/01/1990	
01500	SUBSCRIBER INTERFACE DE	C	002062	1008			09/04/1990	
3011	-ACKERMAN HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	916	916	3400		06/01/1990	
00231	TEKNICA MONITOR TJ2077	C	C45812081	916	3401		06/01/1990	
00312	TOSHIBA VCR M-6007	C	21631470	916	3403		06/01/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210093	916	3408		06/01/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	916			10/12/1990	
00600	NUMONICS DIGITAL TABLET	C	0148789	916	3409		06/01/1990	
01100	Ku RECEIVER (GI)	C	AC3110034543	916			06/01/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002128	916			09/04/1990	
5940	-AKRON HIGH SCHOOL							
00231	TEKNICA MONITOR TJ2077	C	C50813597	750	1901		03/29/1989	
00332	TEKNIKA VCR 882	C	D48010742	750	1903		03/29/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211745	750	1908		03/29/1989	
00600	NUMONICS DIGITAL TABLET	C	300153	750	1909		03/29/1989	
01100	Ku RECEIVER	T	MAC3120079678	750	3196		05/17/1989	
60??	ALBA HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	757	757	1970		08/29/1990	

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00231	TEKNICA MONITOR TJ2077	C	C50813718	757	1971		02/14/1989	
00332	TEKNIKA VCR 882	C	D48810775	757	1973		02/14/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	022147	757	1978		02/14/1989	
00530	AT&T MODEL 530, TELEPHONE	C	.	757	1974		10/12/1990	
00600	NUMONICS DIGITAL TABLET	C	300124	757	1979		02/14/1989	
01100	Ku RECEIVER	T	MAC3120106296	757	1976		02/14/1989	
01500	SUBSCRIBER INTERFACE DEVICE	C	001296	757	...		08/29/1990	
6017	-ALCORN CENTRAL HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	923	923			06/01/1990	
00211	TOSHIBA MONITOR CF2028A	C	14514679	923			06/01/1990	
00318	TOSHIBA VCR M-120	C	22726961	923			09/21/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0210092	923			06/01/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	923			10/15/1990	
01100	Ku RECEIVER (GI)	C	MAC3120084303	923			06/01/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001663	923			08/22/1990	
3017	-ALEDO HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	975	975	3538		06/26/1990	
00211	TOSHIBA MONITOR CF2028A	C	18415625	975	3539		06/27/1990	
00313	TOSHIVA VCR M-1283	C	39621120	975	3541		06/27/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210751	975	3546		06/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	975			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	0485689	975	3626		06/27/1990	
01100	Ku RECEIVER (GI)	C	AC4040465714	975	3707		06/27/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001676	975			07/08/1990	
5938	-ALICEVILLE HIGH SCHOOL							
00211	TOSHIBA MONITOR CF2028A	C	58425988	658	1038		09/12/1988	
00311	TOSHIBA VCR M-6003	C	58532001	658	1040		12/09/1988	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211001	658	1045		12/09/1988	
00600	NUMONICS DIGITAL TABLET	C	0149989	658	5981		12/09/1988	
01100	Ku RECEIVER	T	AC404043730?	658	5958		04/13/1989	
6044	-AMANDA ELZY HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	768	768	2070		06/01/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813669	768	2071		06/01/1990	
00332	TEKNIKA VCR 882	C	D48810006	768	2073		06/01/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211630	768	2078		06/01/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	763			10/15/1990	
00600	NUMONICS DIGITAL TABLET	C	300302	768	2079		06/01/0070	
01100	Ku RECEIVER (GI)	C	MAC3120126950	769			06/01/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002003	763			08/21/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002101	768			10/09/1990	
	-ANDERSON VALLEY HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	717	717	1500		06/22/1990	

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00231	TEKNICA MONITOR TJ2077	C	C50813952	[illegible]	1501		06/22/1990	
00314	TOSHIBA VCR M-1287	C	18633930	717	3114		06/22/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221351	717	1586		06/22/1990	
00600	NUMONICS DIGITAL TABLET	C	300175	717	1589		06/22/1990	
01100	Ku RECEIVER (GI)	C	MAC3120058506	717	5971		06/22/1990	
6000	-APPLE SPRINGS HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	869	869	3000		06/15/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812651	869	3001		06/15/1990	
00334	TEKNIKA VCR 881	C	D03912720	869	3002		06/15/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210245	869	3008		06/15/1990	
00530	AT&T MODEL 530, TELEPHONE	C	NONE	869			09/27/1990	
00600	NUMONICS DIGITAL TABLET	C	300152	869	3009		06/15/1990	
01100	Ku RECEIVER (GI)	C	AC4040464274	869	3006		06/15/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002085	869			12/04/1990	
16046	-AQUILLA SCHOOL DISTRICT							
00100	AUDIO VIDEO UNIT	C	883	883	3220		06/15/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812633	883	3221		07/25/1990	
00312	TOSHIBA VCR M-6007	C	21631971	883	3223		06/15/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204811	883	3228		07/25/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	883			10/17/1990	
00600	NUMONICS DIGITAL TABLET	C	3003001	883	3229		06/15/1990	
01100	Ku RECEIVER (G1)	C	AC3110024114	883	3226		12/18/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001233	883			07/26/1990	
5890	-ASHERTON JR/SR HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	690	690	1309		06/15/1990	
00211	TOSHIBA MONITOR CF2028A	C	58425279	690	1310		06/15/1990	
00311	TOSHIBA VCR M-6003	C	25626996	690	1312		06/15/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211169	690	1317		06/15/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	690			11/05/1990	
00600	NUMONICS DIGITAL TABLET	C	300218	690	1318		06/15/1990	
01100	Ku RECEIVER (GI)	C	AC4020140327	690	1315		06/15/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001059	690			07/18/1990	
6099	-ASTORIA HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	804	804	2440		06/27/1990	
00231	TEKNICA MONITOR TJ2077	C	C49813044	804	2441		06/27/1990	
00334	TEKNIKA VCR 881	C	D03913351	804	2443		06/27/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204927	804	2448		06/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	804			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300312	804	2449		06/27/1990	
01100	Ku RECEIVER (GI)	C	AC3110035015	804			08/02/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001318	804			09/05/1990	

-AVON HIGH SCHOOL

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00100	AUDIO VIDEO UNIT	C	814	814	2540		06/27/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812498	814	2541		06/27/1990	
00330	TEKNIKA VCR 683	C	F65A80704	814	2543		09/18/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204761	814	2548		06/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	814			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300240	814	2549		06/27/1990	
01100	Ku RECEIVER (GI)	C	MAC3120130045	814	3393		06/27/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002027	814			12/03/1990	
3054	-BALYKI HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	973	973	3520		06/27/1990	
00211	TOSHIBA MONITOR CF2028A	C	18415568	973	3602		06/27/1990	
00313	TOSHIVA VCR M-1283	C	39529906	973	3523		06/27/1990	
00421	PRINTER SEIKOSHA SP-1600A1	C	0207189	973	3528		06/27/1990	
00600	NUMONICS DIGITAL TABLET	C	05114589	973	3624		06/27/1990	
01100	Ku RECEIVER (GI)	C	AC3110031718	973	3526		08/01/1990	
3089	-BANDERA HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1055	1055	4051		06/15/1990	
00234	TEKNIKA MONITOR FV261A	C	60490158	1055	4052		11/07/1989	
00313	TOSHIVA VCR M-1283	C	20721740	1055	4054		11/07/1989	
00420	PRINTER SEIKOSHA SP-1200A1	C	0211571	1055	4059		11/07/1989	
00510	UNIDEN XE-250 CORDLESS PHONE	C	..	1055			07/26/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1055			10/18/1990	
00600	NUMONICS DIGITAL TABLET	C	0782889	1055	4060		11/07/1989	
01202	C band RECEIVER, TRACKER II PLUS	T	892009842	1055	4057		11/07/1989	
01500	SUBSCRIBER INTERFACE DEVICE	C	001048	1055			07/27/1990	
4017	-BAY HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1001	1001	3704		06/01/1990	
00211	TOSHIBA MONITOR CF2028A	C	18415655	1001	3705		06/01/1990	
00317	TOSHIBA VCR M-5483	C	18634090	1001	3707		06/01/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0211095	1001	3712		06/01/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1001			10/12/1990	
00600	NUMONICS DIGITAL TABLET	C	0780889	1001	3713		06/01/1990	
01100	Ku RECEIVER (GI)	C	AC3110034284	1001			06/01/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002217 (8,,,)	1001			08/31/1990	
6213	-BEECHER CITY HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	795	795	2350		06/27/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813706	795	3137		06/27/1990	
00313	TOSHIBA VCR M-1283	C	20722149	795	2351		06/27/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205159	795	2358		06/27/1990	
00530	ATAT MODEL 530, TELEPHONE	C	N/A	795			09/25/1990	
00600	NUMONICS DIGITAL TABLET	C	300120	795	2359		06/27/1990	
01100	Ku RECEIVER (GI)	C	MAC3120128482	795	3246		08/09/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001483	795			08/09/1990	

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6191	-BENAVIDES HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1060	1060	4101		06/08/1989	
00214	TOSHIBA MONITOR CF2041	C	60490148	1060	4102		08/31/1989	
00313	TOSHIVA VCR M-1203	C	20722015	1060	4104		06/08/1989	
00420	PRINTER SEIKOSHA SP-1200A1	C	0211763	1060	4109		08/31/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1060			09/25/1990	
00600	NUMONICS DIGITAL TABLET	C	0786689	1060	4110		08/31/1989	
01202	C band RECEIVER, TRACKER 8 PLUS	T	892207342	1060	4107		08/31/1989	
01500	SUBSCRIBER INTERFACE DEVICE	C	001664	1060			08/01/1990	
3053	-BENTON CONS. HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	990	990	3669		06/27/1990	
00211	TOSHIBA MONITOR CF2028A	C	18415560	990	3670		06/27/1990	
00313	TOSHIVA VCR M-1203	C	39622845	990	3672		06/27/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205992	990	3677		06/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	990			10/02/1990	
00600	NUMONICS DIGITAL TABLET	C	0779689	990	3663		06/27/1990	
01100	Ku RECEIVER (GI)	C	AC31200.7214	990	2896		01/11/1991	
01500	SUBSCRIBER INTERFACE DEVICE	C	001702	990			07/08/1990	
5906	-BERRY HIGH SCHOOL							
00216	TOSHIBA MONITOR CF2048	C	8801	682	1254		03/09/1989	
00312	TOSHIBA VCR M-6007	C	25531859	682	1256		03/09/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0203366	682	1261		10/18/1989	
00600	NUMONICS DIGITAL TABLET	C	11035	682	1267		03/09/1989	
01100	Ku RECEIVER	T	310000/733	682	1259		03/09/1989	
6147	-BIGGERSVILLE HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	913	913	3370		06/01/1990	
00211	TOSHIBA MONITOR CF2028A	C	14514608	913	3371		06/01/1990	
00312	TOSHIBA VCR M-6007	C	21632196	913			08/30/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0210188	913	3378		06/01/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	913			10/10/1990	
00600	NUMONICS DIGITAL TABLET	C	0148589	913	3379		06/01/1990	
01100	Ku RECEIVER (GI)	C	MAC3120095057	913	3376		08/30/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002145	.			11/30/1990	
13090	-BLOOMING GROVE ISD							
00100	AUDIO VIDEO UNIT	C	1051	1051			08/02/1990	
00214	TOSHIBA MONITOR CF2041	C	60490650	1051			08/02/1990	
00317	TOSHIBA VCR M-5403	C	18630905	1051	4014		06/15/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0211543	1051	4019		06/15/1990	
00510	UNIDEN XE-250 CORDLESS PHONE	C	.	1051			08/03/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1051	4014		10/17/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1051	4014		10/17/1990	
00600	NUMONICS DIGITAL TABLET	C	0785109	1051	4020		06/15/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	89340489	1051			06/15/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001093	1051			08/03/1990	

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4040 -BLUFFS HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	971	971	3475		06/28/1990	
00211	TOSHIBA MONITOR CF2028A	C	18415612	971	3566		06/28/1990	
00314	TOSHIBA VCR M-1287	C	21533703	971	3478		06/28/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205825	971	3483		06/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	971			10/02/1990	
00600	NUMONICS DIGITAL TABLET	C	0485989	971	3622		06/28/1990	
01100	Ku RECEIVER (GI)	C	AC4040438747	971			08/09/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001594	971			08/09/1990	
6112 -BOGUE CHITTO DAY SCHOOL								
00100	AUDIO VIDEO UNIT	C	771	771	2100		06/01/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813734	771	2101		06/01/1990	
00332	TEKNIKA VCR 882	C	D48810457	771	2103		06/01/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211631	771	2108		06/01/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	771	2105		10/15/1990	
00600	NUMONICS DIGITAL TABLET	C	0149589	771	2109		06/01/1990	
01100	Ku RECEIVER (GI)	C	MAC3120084404	771	2106		06/01/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002144	771			09/04/1990	
6047 -BOSQUEVILLE HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	885	885	3240		06/15/1990	
00213	TOSHIBA MONITOR CF2033	C	37518621	885	3241		11/27/1990	
00334	TEKNIKA VCR 881	C	D03913438	885	3243		06/15/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204813	885	3248		06/15/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	885			10/03/1990	
00600	NUMONICS DIGITAL TABLET	C	300307	885	3249		06/15/1990	
01100	Ku RECEIVER (GI)	C	MAC3110038020	885	3246		09/18/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001388	885			07/26/1990	
4103 -BRACKENRIDGE HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	729	729	1700		06/18/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813713	729	1701		06/18/1990	
00332	TEKNIKA VCR 882	C	D48810663	729	1703		06/18/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211508	729	1708		06/18/1990	
00600	NUMONICS DIGITAL TABLET	C	300134	729	1709		06/18/1990	
01100	Ku RECEIVER (GI)	C	MAC3110049876	729	1706		06/18/1990	
13056 -BROOKLYN USD #188								
00100	AUDIO VIDEO UNIT	C	982	982	3574		06/27/1990	
00211	TOSHIBA MONITOR CF2028A	C	18415773	982	3476		06/27/1990	
00314	TOSHIBA VCR M-1287	C	18634096	982	3577		06/27/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210728	982	3582		06/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	982			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	05114289	982	3633		06/27/1990	
01100	Ku RECEIVER (GI)	C	MAC3110035162	982	3500		08/02/1990	

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01500	SUBSCRIBER INTERFACE DEVICE	C	001677	982			08/02/1990	
5936	-BROOKWOOD HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	669	669	1136		12/28/1989	
00216	TOSHIBA MONITOR CF2048	C	58413066	669	1137		03/09/1989	
00312	TOSHIBA VCR M-6007	C	25531977	669	1139		03/09/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0210939	669	1144		03/09/1989	
00600	NUMONICS DIGITAL TABLET	C	300281	669	5993		12/28/1989	
01100	Ku RECEIVER (GI)	T	AC4020181266	669	1142		03/09/1989	
6033	-BROWN COUNTY HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	821	821	2610		06/27/1990	
00213	TOSKIBA MONITOR CF2033	C	37518696	821	2611		11/08/1990	
00312	TOSHIBA VCR M-6007	C	21632166	821	1998		06/27/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205010	821	2618		06/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	821			10/02/1990	
00600	NUMONICS DIGITAL TABLET	C	300311	821	2619		06/27/1990	
01100	Ku RECEIVER (GI)	C	MAC3120090197	821	2616		01/23/1991	
01500	SUBSCRIBER INTERFACE DEVICE	C	001687	821			08/16/1990	
7056	-BRUCEVILLE-EDDY HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	730	730	1710		02/01/1991	
00231	TEKNICA MONITOR TJ2077	C	C50813704	730	1711		02/01/1991	
00332	TEKNIKA VCR 802	C	D48810801	730	1713		02/01/1991	
00420	PRINTER SEIKOSHA SP-1200AI	C	0210942	730	1718		02/01/1991	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	730	...		02/01/1991	
01100	Ku RECEIVER (GI)	C	MAC3110041607	730	1716		02/01/1991	
01500	SUBSCRIBER INTERFACE DEVICE	C	001183	482			07/31/1990	
6055	-BUNN HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	780	780			05/18/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812576	780	2211		05/18/1990	
00311	TOSHIBA VCR M-6003	C	29632160	780	2213		05/18/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205127	780	2218		05/18/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	780			09/27/1990	
00600	NUMONICS DIGITAL TABLET	C	0151409	780	2219		05/18/1990	
01100	Ku RECEIVER (GI)	C	AC3110047176	780			05/18/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002110	780			10/09/1990	
5976	-BURNEY JR/SR HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	719	719	1600		06/22/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813665	719	1601		06/22/1990	
00313	TOSHIVA VCR M-1203	C	25531846	719	3011		06/22/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211377	719	1608		06/22/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	719			10/15/1990	
00600	NUMONICS DIGITAL TABLET	C	300162	719	1609		06/22/1990	
[illegible]100	Ku RECEIVER (GI)	C	AC4050516464	719	1605		06/22/1990	

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01500	SUBSCRIBER INTERFACE DEVICE	C	001667	719			09/18/1990	
6081 -BUSHLAND MIDDLE SCHOOL								
00100	AUDIO VIDEO UNIT	C	863	863	3020		06/18/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812862	863	3020		06/18/1990	
00334	TEKNIKA VCR 881	C	D03913228	863	3023		06/18/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205012	863	3028		06/18/1990	
00510	UNIDEN XE-250 CORDLESS PHONE	C	.	863			08/10/1990	
00530	AT&T MODEL 530, TELEPHONE	C	.	863	3025		10/15/1990	
00600	NUMONICS DIGITAL TABLET	C	300156	863	3029		06/18/1990	
01100	Ku RECEIVER (GI)	C	AC3120100773	863			06/18/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001840	863			08/10/1990	
5450 -BYERS HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	1050	1050	4001		06/18/1990	
00214	TOSHIBA MONITOR CF2041	C	60481907	1050	4002		06/18/1990	
00313	TOSHIVA VCR M-1283	C	18732041	1050	4004		06/18/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0211542	1050	4009		06/18/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	UNK			10/17/1990	
00600	NUMONICS DIGITAL TABLET	C	0785089	1050	4010		06/18/1990	
01202	C band RECEIVER, TRACKER II PLUS	C	892410423	1050	4007		08/10/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001445	UNK			08/10/1990	
5733 -BYNUM HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	00100	631	3320		06/18/1990	
00212	TOSHIBA MONITOR CF2037	C	26544227	631	3321		06/18/1990	
00310	TOSHIBA VCR M-6000	C	23320147	631	3323		06/18/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0212782	631	3328		06/18/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	631			09/25/1990	
01100	Ku RECEIVER (GI)	C	AC4040443225	631			06/18/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002112	631			10/04/1990	
6077 -BYRUM ATTENDANCE CENTER								
00100	AUDIO VIDEO UNIT	C	786	786	2267		06/01/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813786	786	2271		06/01/1990	
00316	TOSHIBA VCR M-7603	C	29632290	786	2273		06/01/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205095	786	2278		06/01/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	786			10/15/1990	
00600	NUMONICS DIGITAL TABLET	C	0147589	786	2279		06/01/1990	
01100	Ku RECEIVER (GI)	C	HAC3120080163	786	2276		06/01/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001570	786			08/21/1990	
6101 -CAIRO HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	837	837	2770		06/27/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812494	837	2771		06/27/1990	
00334	TEKNIKA VCR 881	C	D03913280	837	2773		06/27/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205910	837	2778		06/27/1990	

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00530	AT&T MODEL 530, TELEPHONE	C	N/A	837			10/02/1990	
00600	NUMONICS DIGITAL TABLET	C	300197	837	2779		06/27/1990	
01100	Ku RECEIVER (GI)	C	MAC4020133026	837	2776		06/27/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001610	837			08/06/1990	
3064	-CALDWELL HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1002	1002	3714		06/01/1990	
00211	TOSHIBA MONITOR CF2028A	C	18415572	1002	3715		06/01/1990	
00317	TOSHIBA VCR M-5483	C	18633577	1002	3717		06/01/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0211092	1002	3722		06/01/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1002			10/12/1990	
00600	NUMONICS DIGITAL TABLET	C	0780289	1002	3723		06/01/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	892204302	1002	3720	0	06/01/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001962	1002			08/28/1990	
4026	-CALHOUN HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	824	824	2640		06/27/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812504	824	2641		06/27/1990	
00334	TEKNIKA VCR 881	C	D03913486	824	2643		06/27/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205143	824	2648		06/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	.	824			09/25/1990	
00600	NUMONICS DIGITAL TABLET	C	300195	824	2649		06/27/1990	
01100	Ku RECEIVER (GI)	C	MAC4020134725	724	2646		06/27/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001601	824			08/01/1990	
[illegible] 00100 -CALHOUN HIGH SCHOOL	AUDIO VIDEO UNIT	C	662	662	1073		12/28/1989	
00211	TOSHIBA MONITOR CF2028A	C	58425909	662	1074		03/21/1989	
[illegible]	TOSHIBA VCR M-6007	C	25531897	662	1076		12/12/1988	03/21/1989
00420	PRINTER SEIKOSHA SP-1200AI	C	0221709	662	1081		03/21/1989	
00530	AT&T MODEL 530, TELEPHONE	C	.	662			10/12/1990	
00600	NUMONICS DIGITAL TABLET	C	300206	662	5985		12/12/1988	
01100	Ku RECEIVER (GI)	T	MAC3120074054	662	1079		12/28/1989	
01500	SUBSCRIBER INTERFACE DEVICE	C	002139	662			08/24/1990	
3057	-CAMP POINT CENTRAL HIGH SCL							
00100	AUDIO VIDEO UNIT	C	969	969	3457		06/27/1990	
00211	TOSHIBA MONITOR CF2028A	C	18415567	969	3458		06/27/0890	
00314	TOSHIBA VCR M-1287	C	18633929	969	3460		06/27/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210518	969	3465		06/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	969			09/27/1990	
00600	NUMONICS DIGITAL TABLET	C	0486389	969	3620		06/27/1990	
01100	Ku RECEIVER (GI)	C	AC3120121383	969	4203		11/21/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001463	969			11/07/1990	
6090	-CAMPBELL K-12 SCHOOL							
00100	AUDIO VIDEO UNIT	C	877	877	3060		06/18/1990	
00231	TEKNICA MONITOR TJ2077	C	C4981266	877	3161		07/30/1990	
00312	TOSHIBA VCR M-6007	C	21632381	877	3163		07/30/1990	
[illegible]	PRINTER SEIKOSHA SP-1600AI	C	0205984	877	3168		06/18/1990	

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00530	AT&T MODEL 530, TELEPHONE	C	N/A	[illegible]			10/05/1990	
00600	NUMONICS DIGITAL TABLET	C	300300	877	3169		06/18/1990	
01100	Ku RECEIVER (GI)	C	AC3120098927	877	3166		06/18/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001059	877			07/30/1990	
7024	-CARRIZO SPRINGS HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1054	1054	4041		06/18/1990	
00214	TOSHIBA MONITOR CF2041	C	60481908	1054	4042		06/18/1990	
00317	TOSHIBA VCR M-5483	C	18638863	1054	4044		06/18/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210235	1054	4049		06/18/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1054			10/15/1990	
00600	NUMONICS DIGITAL TABLET	C	0781289	1054	4050		06/18/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	09240/041	1054	5943		06/18/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001045	1054			07/18/1990	
3060	-CARROLLTON COM UNIT HIGH SCHL							
00100	AUDIO VIDEO UNIT	C	970	970			09/07/1989	
00211	TOSHIBA MONITOR CF2028A	C	18405726	970			09/07/1989	
00314	TOSHIBA VCR M-1287	C	21534149	970			09/07/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0206140	970			09/07/1989	
00600	NUMONICS DIGITAL TABLET	C	0486289	970			09/07/1989	
01100	Ku RECEIVER (GI)	C	MAC3120008319	970			09/26/1990	
5979	-CARROLLTON HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	657	657	1028		12/28/1989	
00211	TOSHIBA MONITOR CF2028A	C	58425903	657	1029		03/01/1989	
00312	TOSHIBA VCR M-6007	C	25531861	657	1031		03/01/1989	
00421	PRINTER SEIKOSHA SP-1600AI	C	0212086	657	NONE		03/01/1989	
00600	NUMONICS DIGITAL TABLET	C	0149789	657	5980		12/28/1989	
01100	Ku RECEIVER (GI)	T	MAC120063660	657	1034		03/01/1989	
5803	-CENTRAL HEIGHTS HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	867	867	3060		06/18/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812884	867	3061		06/18/1990	
00344	TEKNIKA VCR 881	C	D03913132	867	3063		08/01/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210477	867	3048		06/18/1990	
00530	AT&T MODEL 530, TELEPHONE	C	NONE	867			01/17/1991	
00600	NUMONICS DIGITAL TABLET	C	0151089	867	3069		06/18/1990	
01100	Ku RECEIVER (GI)	C	AC4040462755	N/A			06/18/1990	
01100	Ku RECEIVER (GI)	C	MAC3110051518	867	3066		06/18/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002038	867			08/01/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001988	N/A			08/01/1990	
5933	-CENTRAL HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	659	659	1046		05/30/1990	
00211	TOSHIBA MONITOR CF2028A	C	58425970	659	1047		03/21/1989	
00311	TOSHIBA VCR M-6003	C	58536797 (STOLEN)	659	1049		03/21/1989	

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00420	PRINTER SEIKOSHA SP-1200AI	C	0212514	659	1054		03/21/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	659			10/10/1990	
00600	NUMONICS DIGITAL TABLET	C	0150089	659	5982		05/30/1990	
01100	Ku RECEIVER (GI)	T	AC4040455037	659	1052		04/16/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002149	659			08/24/1990	
6057	-CHARLES B. AYCOCK HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	792	792	2330		05/18/1990	
00231	TEKNIKA MONITOR TJ2077	C	C50813601	792	2331		05/18/1990	
00332	TEKNIKA VCR 682	C	D48810513	792	2333		05/18/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0210861	792	2338		05/18/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	792			09/27/1990	
00600	NUMONICS DIGITAL TABLET	C	0147489	792	2339		05/18/1990	
01100	Ku RECEIVER (GI)	C	AC3120131068	792	2626		05/18/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001173	792			07/31/1990	
5893	-CHEROKEE COUNTY HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	679	679	1226		05/30/1990	
00216	TOSHIBA MONITOR CF2048	C	58413067	679	1227		03/20/1989	
00312	TOSHIBA VCR M-6007	C	25532011	679	1229		03/20/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211135	679	1234		03/20/1989	
00530	AT&T MODEL 530, TELEPHONE	C	.	679			10/12/1990	
00600	NUMONICS DIGITAL TABLET	C	0148889	679	5997		05/30/1990	
01100	Ku RECEIVER (GI)	C	AC4040478595	679	1232		03/22/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002024	679			08/22/1990	
6158	-CHEROKEE HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	890	890	3290		05/21/1990	
00231	TEKNIKA MONITOR TJ2077	C	C49812687	890	3291		05/21/1990	
00312	TOSHIBA VCR M-6007	C	21631974	890	3293		05/21/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210152	890	3798		05/21/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	890			09/27/1990	
01100	Ku RECEIVER (GI)	C	AC3120112102	890	UKN		05/21/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001307	890			07/18/1990	
5882	-CHEYENNE EAGLE BUTTE SCHOOL							
00100	AUDIO VIDEO UNIT	C	698	698	1390		06/15/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813657	698	1391		06/15/1990	
00330	TEKNIKA VCR 683	C	E6SA81014	698	1393		10/25/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221454	698	3710		06/15/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	698			10/18/1990	
00600	NUMONICS DIGITAL TABLET	C	300180	698	1399		06/15/1990	
01100	Ku RECEIVER (GI)	C	AC4040448423	698	1396		06/15/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001345	698			08/03/1990	
5880	-CHIEF BUG-O-NAY-GE SHIG SCHL							
00100	AUDIO VIDEO UNIT	C	693	693	1339		02/02/1989	

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00231	TEKNICA MONITOR TJ2077	C	C50813684	693	1340		02/02/1989	
00332	TEKNIKA VCR 882	C	D48810675	693	1342		02/02/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0210999	693	1348		02/02/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	693			10/18/1990	
00600	NUMONICS DIGITAL TABLET	C	300214	693	1349		02/02/1989	
01100	Ku RECEIVER (GI)	C	AC4040449367	693	1345		02/02/1989	
01500	SUBSCRIBER INTERFACE DEVICE	C	001302	693			08/03/1990	
6113	-CHOCTAW CENTRAL SCHOOL							
00100	AUDIO VIDEO UNIT	C	773	773	2120		06/01/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813751	773	2121		06/01/1990	
00332	TEKNIKA VCR 882	C	D48810322	773	2123		06/01/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221699	773	2128		06/01/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	773	2125		10/30/1990	
00600	NUMONICS DIGITAL TABLET	C	300140	773	2129		06/01/1990	
01100	Ku RECEIVER (GI)	C	MAC3120071163	773			06/01/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002015	773			09/04/1990	
5921	-CHOCTAW COUNTY HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	753	753	1930		12/28/1989	
00231	TEKNIKA MONITOR TJ2077	C	C50813740	753	1931		03/28/1989	
00332	TEKNIKA VCR 682	C	D48810537	753	1933		03/28/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211746	753	1938		03/21/1989	
00600	NUMONICS DIGITAL TABLET	C	300247	735	1939		03/28/1989	
01100	Ku RECEIVER (GI)	T	AC3110015812	753	1936		03/21/1989	
6102	-CHRISTOPHER CMTY HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	827	827	2670		06/27/1990	
00100	AUDIO VIDEO UNIT	C	1123	1123			06/27/1990	
00213	TOSKIBA MONITOR CF2033	C	37518491	1123			06/21/1990	
00231	TEKNICA MONITOR TJ2077	C	C49813101	827	3671		06/27/1990	
00334	TEKNIKA VCR 881	C	H28937105	1123			06/21/1990	
00334	TEKNIKA VCR 881	C	D03913359	827	2673		06/27/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0216465	1123			06/21/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0203628	827	2678		06/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1123			10/02/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	827			10/02/1990	
00600	NUMONICS DIGITAL TABLET	C	300149	827	2679		06/27/1990	
01100	Ku RECEIVER (GI)	C	AC4040469797	827	2906		06/21/1990	
01100	Ku RECEIVER (GI)	C	AC3120110673	1123			06/27/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001615	827			08/13/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001470	1123			08/13/1990	
3051	-CLARKDALE ATTENDANCE CENTER							
00100	AUDIO VIDEO UNIT	C	1014	1014	36[illegible]		06/01/1990	
00211	TOSHIBA MONITOR CF2028A	C	18415517	1014	3835		06/01/1990	
00317	TOSHIBA VCR M-5483	C	18634592	1014	3837		06/01/1990	
[illegible]421	PRINTER SEIKOSHA SP-1600AI	C	0210999	1014	3842		06/01/1990	

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00530	AT&T MODEL 530, TELEPHONE	C	N/A	1014			10/15/1990	
00600	NUMONICS DIGITAL TABLET	C	0778989	1014	3843		06/01/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	892009433	1014	3841		06/01/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002152	1014			08/26/1990	
6908	-COFFEE COUNTY JR/SR H.S.							
00100	AUDIO VIDEO UNIT	C	1022	1022			06/15/1990	
00211	TOSHIBA MONITOR CF2028A	C	18415511	1022			06/15/1990	
00313	TOSHIBA VCR M-1203	C	20722047	1022			12/04/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0211094	1022			06/15/1990	
00510	UNIDEN XE-250 CORDLESS PHONE	C	.	1022			08/03/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	892009820	1022			06/15/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001645	1022			08/03/1990	
6114	-COLUMBIA HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	726	726			01/31/1989	
00231	TEKNICA MONITOR TJ2077	C	C50813935	726			01/31/1989	
00332	TEKNIKA VCR 882	C	D48810365	726			01/31/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211380	726			01/31/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	726			10/11/1990	
01100	Ku RECEIVER (GI)	C	MAC3110045624	726			09/05/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001951	726			09/05/1990	
3094	-COLUMBUS HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1052	1052			06/18/1990	
00214	TOSHIBA MONITOR CF2041	C	60481415	1052	4032		06/18/1990	
00313	TOSHIVA VCR M-1203	C	18732013	1052	4034		06/18/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210234	1052	4039		06/18/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1052			10/12/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1052			10/12/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	89220313	1052	4037		06/18/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001492	1052			07/25/1990	
6091	-COOLIDGE HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	886	886	3250		06/18/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812639	886	3251		06/18/1990	
00312	TOSHIBA VCR M-6007	C	21631491	886	3253		06/18/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	024733	886	3258		06/18/1990	
00530	AT&T MODEL 530, TELEPHONE	C	NONE	886			09/12/1990	
00600	NUMONICS DIGITAL TABLET	C	300136	886	3259		06/18/1990	
01100	Ku RECEIVER (GI)	C	AC3120061590	886			08/07/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001756	886			08/06/1990	
5941	-COTULLA JR/SR HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	691	691	1319		06/19/1990	
00216	TOSHIBA MONITOR CF2048	C	58413031	691	1320		06/19/1990	
00310	TOSHIBA VCR M-6000	C	23320148	691	1322		06/19/1990	

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00421	PRINTER SEIKOSHA SP-1600AI	C	0221255	691	1320		06/19/1990	
00510	UNIDEN XE-250 CORDLESS PHONE	C	UKN	691			07/18/1990	
00530	AT&T MODEL 530, TELEPHONE	C	.	691	1323		10/01/1990	
01100	Ku RECEIVER (GI)	C	AC3120068507	691	1325		06/19/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001038	691			07/18/1990	
6177 -COVINGTON HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	859	859	2990		06/19/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812677	859	2991		06/19/1990	
00318	TOSHIBA VCR M-120	C	22727505	859	2993		09/21/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211289	859	2998		06/19/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	859			10/03/1990	
00530	AT&T MODEL 530, TELEPHONE	C	.	859	2995		10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300253	859	2979		06/19/1990	
01100	Ku RECEIVER (GI)	C	MAC3120128583	859	2996		06/19/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001382	859			07/25/1990	
3059 -COWDEN-HERRICK HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	986	986	3610		06/27/1990	
00213	TOSKIBA MONITOR CF2033	C	19415212	986			06/27/1990	
00313	TOSHIVA VCR M-1283	C	02721768	986			06/27/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210729	986	3618		06/27/1990	
00600	NUMONICS DIGITAL TABLET	C	0486589	986	3619		06/27/1990	
01100	Ku RECEIVER (GI)	C	MAC4020133410	986	986		06/27/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001674	986			08/09/1990	
5656 -CROCKETT HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	870	870	3090		09/19/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812672	870	3091		06/19/1990	
00319	TOSHIBA VCR M-220	C	19539363	870			10/17/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210467	870	3098		06/19/1990	
00510	UNIDEN XE-250 CORDLESS PHONE	C	.	870			08/06/1990	
00530	AT&T MODEL 530, TELEPHONE	C	.	870	3095		10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300119	870	3099		06/19/1990	
01100	Ku RECEIVER (GI)	C	AC3120113520	870			06/19/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001985	870			08/06/1990	
5885 -CROW CREEK HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	696	696	1370		06/15/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813672	696	1371		06/15/1990	
00332	TEKNIKA VCR 882	C	D48810741	696	1373		06/15/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211000	696	1378		06/15/1990	
00600	NUMONICS DIGITAL TABLET	C	300177	061590	1379		06/15/1990	
01100	Ku RECEIVER (GI)	C	AC3120128943	696			06/15/1990	
6590 -CRYSTAL CITY HIGH SCHOOL								
100	AUDIO VIDEO UNIT	C	1053	1053	4021		06/19/1990	

RESOURCE CODE	RESOURCE NAME	WHO OWNS	SERIAL NUMBER	CART NUMBER	STAR NUMBER	ASSET NUMBER	INSTALLATION DATE	LAST MAINT
00214	TOSHIBA MONITOR CF2041	C	60489177	1053	4022		06/19/1990	
00317	TOSHIBA VCR M-5483	C	18638945	1053	4024		06/19/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0211631	1053	4029		06/19/1990	
00510	UNIDEN XE-250 CORDLESS PHONE	C	UKN	1053			07/18/1990	
00530	AT&T MODEL 530, TELEPHONE	C	.	1053	4021		10/15/1990	
00600	NUMONICS DIGITAL TABLET	C	0781389	1053	4030		06/19/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	892005015	1053	4027		06/19/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001041	1053			07/18/1990	
4034	-D'HANIS HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1057	1057	4071		06/19/1990	
00214	TOSHIBA MONITOR CF2041	C	60481518	1057	4072		06/19/1990	
00313	TOSHIVA VCR M-1283	C	20722113	1057	4074		06/19/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0212136	1057	4079		06/19/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1057			10/12/1990	
00600	NUMONICS DIGITAL TABLET	C	0783189	1057	4080		06/19/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	892006827	1057	4077		06/19/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001933	1057			10/26/1990	
3018	-DALLAS CITY HIGH SCHOOL #336							
00100	AUDIO VIDEO UNIT	C	976	976	3511		06/27/1990	
00211	TOSHIBA MONITOR CF2028A	C	18415510	976	3512		06/27/1990	
00332	TEKNIKA VCR 882	C	D48810873	976	2862		06/27/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0207526	976	3519		06/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	976			10/02/1990	
01100	Ku RECEIVER (GI)	C	MAC3120078565	976	3517		02/04/1991	
01500	SUBSCRIBER INTERFACE DEVICE	C	001596	976			08/02/1990	
5930	-DALLAS CO. HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	664	664	1091		12/28/1989	
00211	TOSHIBA MONITOR CF2028A	C	58425902	664	1092		03/20/1989	
00310	TOSHIBA VCR M-6000	C	69323069	664	1094		03/20/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0212456	664	1099		03/20/1989	
00600	NUMONICS DIGITAL TABLET	C	300216	664	5987		12/28/1989	
01100	Ku RECEIVER (GI)	T	MAC4020134951	664	1097		03/20/1989	
5968	-DEL MAR HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	714	714	1550		06/22/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813708	714	1551		06/22/1990	
00332	TEKNIKA VCR 882	C	D48810768	714	1553		06/22/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211586	714	1552		06/22/1990	
00510	UNIDEN XE-250 CORDLESS PHONE	C	.	714			08/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300212	714	1559		06/22/1990	
01100	Ku RECEIVER (GI)	C	AC3120069947	714	2067		06/22/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001414	714			08/01/1990	

5[illegible] -DEMOPOLIS HIGH SCHOOL

RESOURCE CODE	RESOURCE NAME	WHO OWNS	SERIAL NUMBER	CART NUMBER	STAR NUMBER	ASSET NUMBER	INSTALLATION DATE	LAST MAINT
00100	AUDIO VIDEO UNIT	C	787	787	2280		12/28/1989	
00231	TEKNIKA MONITOR TJ2077	C	C50813470	787	2281		03/29/1989	
00332	TEKNIKA VCR 682	C	D48810682	787	2283		03/29/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0210943	787	2288		03/29/1989	
01100	Ku RECEIVER (GI)	T	MAC3100010793	787	2286		03/29/1989	
7002	-DEWEYVILLE HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	995	995	3686		06/19/1990	
00211	TOSHIBA MONITOR CF2028A	C	18415542	995	3687		06/19/1990	
00313	TOSHIVA VCR M-1283	C	39623077	995	3689		06/19/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210766	995	3692		06/19/1990	
00530	AT&T MODEL 530, TELEPHONE	C	.	.			10/04/1990	
00600	NUMONICS DIGITAL TABLET	C	0781189	995	3693		06/19/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	892004899	995			06/19/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001579	995			07/30/1990	
6082	-DILLEY HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	851 (PARTS-STOLEN)	838	2781		06/20/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812660	838	2781		06/20/1990	
00319	TOSHIBA VCR M-220	C	22628673	838			12/13/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204917	838	2788		06/20/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	838			10/16/1990	
00600	NUMONICS DIGITAL TABLET	C	300287	838	2929		06/20/1990	
00600	NUMONICS DIGITAL TABLET	C	300222	838	2789		06/20/1990	
01100	Ku RECEIVER (GI)	C	MAC3120106937	838			06/20/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001037	838			07/19/1990	
5964	-DOS PALOS HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	713	713	1540		06/22/1990	
00211	TOSHIBA MONITOR CF2028A	C	58425277	713	1541		06/22/1990	
00313	TOSHIBA VCR M-1283	C	20721831	713	1543		09/07/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211002	713	1548		06/22/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	713			10/15/1990	
00600	NUMONICS DIGITAL TABLET	C	300173	713	1549		06/22/1990	
01100	Ku RECEIVER (GI)	C	AC3100004065	713			06/22/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001085	713			08/07/1990	
6025	-DOTHAN HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	770	770	2090		12/28/1989	
00231	TEKNIKA MONITOR TJ2077	C	C50813479	770	2091		03/22/1989	
00311	TOSHIBA VCR M-6003	C	29631941	770	2093		03/22/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	025122	770	2098		03/22/1989	
00600	NUMONICS DIGITAL TABLET	C	300303	770	2099		12/28/1989	
01100	Ku RECEIVER (GI)	T	MAC3100003345	770	2607		03/22/1989	
1402	-DOUGLASS HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	872	872	3110		06/29/1990	

RESOURCE CODE	RESOURCE NAME	WHO OWNS	SERIAL NUMBER	CART NUMBER	STAR NUMBER	ASSET NUMBER	INSTALLATION DATE	LAST MAINT
00231	TEKNICA MONITOR TJ2077	C	C50814037	872	3111		06/20/1990	
00312	TOSHIBA VCR M-6007	C	21631513	872	3113		06/20/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0211053	872	3118		06/20/1990	
00600	NUMONICS DIGITAL TABLET	C	300163	872	3119		06/20/1990	
01100	Ku RECEIVER (GI)	C	MAC3120120472	872	2306		06/20/1990	
5310	-DUPO HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	983	983	3592		08/15/1989	
00211	TOSHIBA MONITOR CF2028A	C	10415763	983	3593		06/27/1990	
00313	TOSHIVA VCR M-1283	C	39622667	983	3595		06/27/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0207323	983	3600		06/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	983			10/02/1990	
00600	NUMONICS DIGITAL TABLET	C	05114689	983	3634		06/27/1990	
01100	Ku RECEIVER (GI)	C	AC4040428904	983	3598		08/02/1990	
01100	Ku RECEIVER (GI)	C	AC4040428904	983	3598		08/02/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001632	983			08/02/1990	
5974	-DURAND HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	815	815	2550		06/27/1990	
00231	TEKNICA MONITOR TJ2077	C	C49813016	815	2551		06/27/1990	
00312	TOSHIBA VCR M-6007	C	69322978	815			06/27/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205142	815	2558		06/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	815			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300237	815	2559		06/27/1990	
01100	Ku RECEIVER (GI)	C	AC3120091367	815			06/27/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001449	815			08/14/1990	
4021	-ED MAYO JR HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1021	1021			08/24/1989	
00211	TOSHIBA MONITOR CF2028A	C	10415660	1021			08/24/1989	
00313	TOSHIVA VCR M-1283	C	39620360	1021			08/24/1989	
00421	PRINTER SEIKOSHA SP-1600AI	C	0213564	1021			08/24/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1021			10/12/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	89182499	1021			08/30/1990	
01301	MULTIFUNCION INTERFACE UNIT (DUAL BAND)	C	89051175-1205	1021			08/24/1989	
01500	SUBSCRIBER INTERFACE DEVICE	C	001811	1021			08/30/1990	
5039	-EDCOUCH-ELSA HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1061	1061	4111		06/20/1990	
00214	TOSHIBA MONITOR CF2041	C	60489418	1061	4112		06/20/1990	
00313	TOSHIVA VCR M-1283	C	20722168	1061	4114		06/20/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210237	1061	4119		06/20/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1061			10/19/1990	
00600	NUMONICS DIGITAL TABLET	C	0786489	1061	4120		06/20/1990	
01100	Ku RECEIVER (GI)	C	AC3120059665	1061			06/20/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	892205590	1061	4117		06/20/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001817	1061			07/08/1990	

RESOURCE CODE	RESOURCE NAME	WHO OWNS	SERIAL NUMBER	CART NUMBER	STAR NUMBER	ASSET NUMBER	INSTALLATION DATE	LAST MAINT
5980 -EDGEWOOD HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	727	727	1680		06/20/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813682	727	1681		03/09/1989	
00332	TEKNIKA VCR 882	C	D48810732	727	1683		03/09/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211098	727	1688		03/09/1989	
00600	NUMONICS DIGITAL TABLET	C	300163	727	1689		06/20/1990	
01100	Ku RECEIVER (GI)	C	MAC3110042070	727	1686		03/09/1989	
16103 -EDUCATION SERVICE CENTER #16								
00100	AUDIO VIDEO UNIT	C	842	842	2830		06/27/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812647	842	2831		06/27/1990	
00334	TEKNIKA VCR 881	C	31913965	842	2267		06/27/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204693	843	2838		06/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	842			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300268	842	2839		06/27/1990	
01100	Ku RECEIVER (GI)	C	AC3120121056	842	3527		06/27/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001681	842			08/02/1990	
15989 -EDUCATION SERVICE CENTER #8								
00100	AUDIO VIDEO UNIT	C	811	811	2510		06/27/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812507	811	2511		06/27/1990	
00334	TEKNIKA VCR 881	C	D03913487	811	2513		06/27/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204868	811	2518		06/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	811			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300231	811	2519		06/27/1990	
01100	Ku RECEIVER (GI)	C	MAC3110040988	811	2516		06/27/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001694	811			08/13/1990	
4029 -ELLICOTT JR-SR HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	927	927	3420		06/25/1990	
00211	TOSHIBA MONITOR CF2028A	C	14514682	927	3421		06/25/1990	
00312	TOSHIBA VCR M-6007	C	21631540	927	21631540		06/25/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0207534	927	3428		06/25/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	927			10/12/1990	
00600	NUMONICS DIGITAL TABLET	C	0150889	927	3429		06/25/1990	
01100	Ku RECEIVER (GI)	C	AC3120119493	927			07/19/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001346	927			07/19/1990	
4030 -EMMA SANSOM HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	678	678	1217		05/30/1990	
00211	TOSHIBA MONITOR CF2028A	C	58425272	678	1218		05/30/1990	
00311	TOSHIBA VCR M-6003	C	25638317	678	1220		05/30/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221715	678			05/30/1990	
00600	NUMONICS DIGITAL TABLET	C	300320	678	1225		05/30/1990	
01100	Ku RECEIVER (GI)	C	AC4040475186	678			05/30/1990	

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-ESC #13 -MYNA THOMPSON SCHOOL

RESOURCE CODE	RESOURCE NAME	WHO OWNS	SERIAL NUMBER	PORT NUMBER	STAR NUMBER	ASSET NUMBER	INSTALLATION DATE	LAST MAINT
00100	AUDIO VIDEO UNIT	C	847	847	2880		06/28/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812513	847	2880		06/28/1990	
00313	TOSHIBA VCR M-1283	C	20722111	847			06/28/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205843	847	2888		06/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	847			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300262	847	2889		06/28/1990	
01100	Ku RECEIVER (GI)	C	MAC3120083875	847			06/28/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001699	847			08/10/1990	
5905	-ETOWAH HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	733	733	1730		01/06/1990	
00231	TEKNIKA MONITOR TJ2077	C	C50813727	733	1731		01/06/1990	
00332	TEKNIKA VCR 682	C	D48810752	733	1733		01/06/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221711	733	1738		01/06/1990	
00600	NUMONICS DIGITAL TABLET	C	300191	733	1739		01/06/1990	
01100	Ku RECEIVER (GI)	T	AC4020138088	733	3895		08/21/1989	
5922	-EUTAW HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	745	745	1850		12/28/1989	
00210	TOSHIBA MONITOR CF2020A	C	C50813556	745	1851		01/28/1989	
00332	TEKNIKA VCR 682	C	D48810424	745	1853		01/28/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211747	745	1858		01/28/1989	
00600	NUMONICS DIGITAL TABLET	C	300296	745	1859		12/28/1989	
01100	Ku RECEIVER (GI)	T	3110013450	745	1856		01/28/1989	
6010	-FARMVILLE CENTRAL HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	790	790	2310		05/21/1990	
00100	AUDIO VIDEO UNIT	C	407	407			07/11/1988	
00231	TEKNIKA MONITOR TJ2077	C	C49813072	790	2311		05/21/1990	
00232	TEKNIKA MONITOR FH202	C	60702726	407			07/11/1988	
00310	TOSHIBA VCR M-6000	C	69323583	407			07/11/1988	
00312	TOSHIBA VCR M-6007	C	58528061	790	2313		05/21/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0212788	407			07/11/1988	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205126	790	2318		05/21/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	790			08/03/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	790			09/27/1990	
00600	NUMONICS DIGITAL TABLET	C	300201	790	2319		05/21/1990	
01100	Ku RECEIVER (GI)	C	MAC3120120314	790			09/18/1990	
01100	Ku RECEIVER (GI)	C	AC3120061577	407			05/17/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001207 (9,,,)	790			08/03/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001177 (9,,,)	407			08/01/1990	
5908	-FAYETTE COUNTY HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	684	684	1271		12/28/1989	
00216	TOSHIBA MONITOR CF2048	C	58413072	684	1272		03/09/1989	
00311	TOSHIBA VCR M-6003	C	58532825	684	1274		03/09/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221195	684	1279		03/09/1989	
[illegible]100	Ku RECEIVER (GI)	T	AC4050512054	684	1277		03/09/1989	

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RESOURCE CODE	RESOURCE NAME	WHO OWNS	SERIAL NUMBER	CART NUMBER	STAR NUMBER	ASSET NUMBER	INSTALLATION DATE	LAST MAINT
5084	-FLANDREAU INDIAN SCHOOL							
00100	AUDIO VIDEO UNIT	C	699	699	1400		06/15/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813658	699	1401		06/15/1990	
00332	TEKNIKA VCR 882	C	D40810449	699	1403		06/15/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0210863	699	1408		06/15/1990	
00600	NUMONICS DIGITAL TABLET	C	0210863	699	1409		06/15/1990	
01100	Ku RECEIVER (GI)	C	AC4050517026	699	1406		06/15/1990	
3098	-FLORESVILLE HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1059	1059	4091		06/20/1990	
00214	TOSHIBA MONITOR CF2041	C	60489195	1059	4092		06/20/1990	
00313	TOSHIVA VCR M-1283	C	20721611	1059	4094		06/20/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0207322	1059	4099		06/20/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1059			10/19/1990	
00600	NUMONICS DIGITAL TABLET	C	0782789	1059	4100		06/20/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	892208284	1059	4097		06/20/1990	
01500	SUBSCRIBER INTERFACE DEVICE	T	001034	1059			07/16/1990	
3062	-FORMAN HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	972	972	3484		06/27/1990	
00211	TOSHIBA MONITOR CF2028A	C	10415524	972	3575		06/27/1990	
00314	TOSHIBA VCR M-1287	C	10634098	972	3487		06/27/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210521	972	3492		06/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	972			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	0485289	972	3623		06/27/1990	
01100	Ku RECEIVER (GI)	C	AC3120061184	972	2493		08/01/1990	
01500	SUBSCRIBER INTERFACE DEVICE	T	001565	972			08/01/1990	
5896	-FYFFE HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	674	674	1181		03/20/1989	
00216	TOSHIBA MONITOR CF2048	C	58403065	674	1182		03/20/1989	
00311	TOSHIBA VCR M-6003	C	13538990	674	1184		03/20/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221808	674	1189		03/20/1989	
00600	NUMONICS DIGITAL TABLET	C	11029	674	1262		03/20/0589	
01100	Ku RECEIVER (GI)	T	AC31201089967	674	1187		12/22/1988	
5900	-GASTON HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	686	686	1289		03/10/1989	
00216	TOSHIBA MONITOR CF2048	C	58413014	686	1290		03/10/1989	
00310	TOSHIBA VCR M-6000	C	69323343	686	1292		03/10/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0212358	686	1297		03/10/1989	
00600	NUMONICS DIGITAL TABLET	C	10676	686	1270		03/10/1989	
01100	Ku RECEIVER (GI)	T	AC3110056828	686	1957		02/01/1990	
	-GLENWOOD HIGH SCHOOL							

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00100	AUDIO VIDEO UNIT	C	845	845	2860		09/27/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812548	845	2861		09/27/1990	
00334	TEKNIKA VCR 881	C	D03913222	845	2863		07/29/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205161	845	2868		09/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	845			10/02/1990	
00600	NUMONICS DIGITAL TABLET	C	300242	845	2869		09/27/1990	
01100	Ku RECEIVER (GI)	C	AC4040447657	845	2866		09/27/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001693	845			09/27/1990	
6048	-GOLD BURG HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	865	865	3040		11/09/1989	
00231	TEKNICA MONITOR TJ2077	C	C43811020	865	3041		06/20/1990	
00334	TEKNIKA VCR 881	C	D03913139	865	3043		06/20/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205985	865	3048		06/20/1990	
00530	AT&T MODEL 530, TELEPHONE	C	.	865	3045		09/25/1990	
00600	NUMONICS DIGITAL TABLET	C	300130	865	3049		06/20/1990	
01100	Ku RECEIVER (GI)	C	MAC3110023945	865	3046		09/18/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001395	865	..		07/18/1990	
5946	-GORDO HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	661	661	1064		03/01/1989	
00211	TOSHIBA MONITOR CF2028A	C	58425987	661	1065		03/01/1989	
00311	TOSHIBA VCR M-6003	C	25638328	661	1067		03/01/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211003	661	1072		03/01/1989	
00600	NUMONICS DIGITAL TABLET	C	300207	661	5984		12/28/1989	
01100	Ku RECEIVER (GI)	T	MAC3110020762	661	NONE		10/13/1989	
3012	-GORHAM HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	989	989	3653		06/27/1990	
00213	TOSKIBA MONITOR CF2033	C	37517610	989	3654		11/27/1990	
00314	TOSHIBA VCR M-1287	C	21534187	989	3656		06/27/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0207529	989	3661		06/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	989			10/02/1990	
00600	NUMONICS DIGITAL TABLET	C	0779789	989	3665		06/27/1990	
01100	Ku RECEIVER (GI)	C	AC4040487540	989	3659		08/03/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001338	989			10/25/1990	
6092	-GORMAN HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	881	881	3200		06/20/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812688	881	3201		06/20/1990	
00312	TOSHIBA VCR M-6007	C	21631560	881	3203		06/20/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210151	881	3208		06/20/1990	
00530	AT&T MODEL 530, TELEPHONE	C	.	881			10/03/1990	
00600	NUMONICS DIGITAL TABLET	C	300309	881	3209		06/20/1990	
01100	Ku RECEIVER (GI)	C	AC3110041078	881			06/20/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002150	881			10/08/1990	

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6034	-GREENFIELD SCHOOLS							
00100	AUDIO VIDEO UNIT	C	823	823	2630		06/27/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812528	823	2631		06/27/1990	
00334	TEKNIKA VCR 881	C	D03913137	823	2633		06/27/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204976	823	2638		06/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	823			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300223	823	2639		06/27/1990	
01100	Ku RECEIVER (GI)	C	MAC3110033204	823	2636		06/27/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001600	823			08/01/1990	
5944	-GREENSBORO HIGH SCHOOL EAST							
00100	AUDIO VIDEO UNIT	C	748	748	1880		03/29/1989	
00231	TEKNICA MONITOR TJ2077	C	C50813654	5944	1881		05/31/1990	
00332	TEKNIKA VCR 882	C	D48810331	748	1883		03/29/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0212444	748	1888		03/29/1989	
00600	NUMONICS DIGITAL TABLET	C	300165	748	1889		03/29/1989	
01100	Ku RECEIVER (GI)	T	MAC3120076282	748	5953		03/29/1989	
5945	-GREENSBORO HIGH SCHOOL WEST							
00100	AUDIO VIDEO UNIT	C	749	749	1890		03/29/1989	
00231	TEKNIKA MONITOR TJ2077	C	C50813551	749	1891		03/29/1989	
00332	TEKNIKA VCR 682	C	D48810169	749	1893		03/29/1989	
00420	PRINTER SEIKOSHA SP-1200A1	C	0221474	749	1898		03/29/1989	
00600	NUMONICS DIGITAL TABLET	C	300154	749	1899		03/29/1989	
01100	Ku RECEIVER (GI)	T	AC4040452743	749	NONE		03/29/1989	
6035	-GREENVIEW HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	841	841	2810		06/27/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812648	841	2811		06/27/1990	
00334	TEKNIKA VCR 881	C	D03913199	841	2814		06/27/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204804	841	2818		06/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	841			10/02/1990	
00600	NUMONICS DIGITAL TABLET	C	300164	841	2819		06/27/1990	
01100	Ku RECEIVER (GI)	C	AC3120106961	841	4197		06/27/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001612	1138			08/01/1990	
6079	-GREENVILLE HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	735	735			04/12/1989	
00231	TEKNICA MONITOR TJ2077	C	C50813560	735			04/12/1989	
00332	TEKNIKA VCR 882	C	D48810515	735			04/12/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221642	735			04/12/1989	
00530	AT&T MODEL 530, TELEPHONE	C		735			11/13/1990	
01100	Ku RECEIVER (GI)	C	AC3110031720	735			04/12/1989	
01500	SUBSCRIBER INTERFACE DEVICE	C	001915	735			09/15/1990	
[illegible]	-GREENWOOD HIGH SCHOOL						[illegible]	

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00231	TEKNICA MONITOR TJ2077	C	C50813606	763			02/09/1989	
00332	TEKNIKA VCR 882	C	D48810174	763			02/09/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211700	763			02/09/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	763			10/15/1990	
01100	Ku RECEIVER (GI)	C	AC3120113722	763			02/09/1989	
01500	SUBSCRIBER INTERFACE DEVICE	C	002003	763			09/15/1990	
5965 -GRIDLEY HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	718	718	1590		06/22/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813567	718	1591		06/22/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211060	718	1598		06/22/1990	
00600	NUMONICS DIGITAL TABLET	C	300211	718	1599		06/22/1990	
01100	Ku RECEIVER (GI)	C	AC3120065638	118			06/22/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	892006818	718			06/22/1990	
5991 -GRIGGSVILLE HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	796	796	2360		06/27/1990	
00231	TEKNICA MONITOR TJ2077	C	C45811988	796	2257		06/27/1990	
00313	TOSHIVA VCR M-1283	C	20722033	796			06/27/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205129	796	2360		06/27/1990	
00510	UNIDEN XE-250 CORDLESS PHONE	C	.	796			08/09/1990	
00600	NUMONICS DIGITAL TABLET	C	300122	796	2369		06/27/1990	
01100	Ku RECEIVER (GI)	C	MAC3120099963	796	1586		06/27/1990	
5947 -HALE COUNTY HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	754	754	1940		01/06/1990	
00231	TEKNIKA MONITOR TJ2077	C	C50813611	754	1941		01/06/1990	
00332	TEKNIKA VCR 682	C	048810338	754	1943		01/06/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211452	754	1948		01/06/1990	
00600	NUMONICS DIGITAL TABLET	C	300245	754	1949		01/06/1990	
01100	Ku RECEIVER (GI)	T	AC3110035230	754	1232		01/06/1990	
6170 -HAMILTON COUNTY CUSD #10								
00100	AUDIO VIDEO UNIT	C	828	828	2680		06/28/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812509	828	2681		06/28/1990	
00334	TEKNIKA VCR 881	C	D03913350	828	2683		06/28/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204975	828	2688		06/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	828			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300236	828	2689		06/28/1990	
01100	Ku RECEIVER (GI)	C	MAC3120127558	828	2686		06/28/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001689	828			08/07/1990	
6142 -HAMILTON HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	882	882	3210		06/20/1990	
00231	TEKNICA MONITOR TJ2077	C	C59812599	882	3221		07/24/1990	
00334	TEKNIKA VCR 881	C	D03913270	882	3213		06/20/1990	
421	PRINTER SEIKOSHA SP-1600AI	C	0210141	882	3218		06/20/1990	

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00530	AT&T MODEL 530, TELEPHONE	C	.	3215	882		10/03/1990	
01100	Ku RECEIVER (GI)	C	AC3110031000	882			07/24/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001315	882			07/25/1990	
5878	-HAPPY CAMP HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	720	720	1610		06/22/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813607	720	1611		06/22/1990	
00333	TEKNIKA VCR 782	C	D48810236	720	1613		06/22/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221312	720	1618		06/22/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	720			10/15/1990	
00600	NUMONICS DIGITAL TABLET	C	300217	720	1619		06/22/1990	
01100	Ku RECEIVER (GI)	C	MAC3120117478	720	5956		06/22/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001141	720			07/25/1990	
6093	-HAPPY HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	861	861	2910		06/20/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812581	861	2911		06/20/1990	
00334	TEKNIKA VCR 881	C	D03913046	861	2913		06/20/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205913	861	2918		06/20/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	861			10/12/1990	
00600	NUMONICS DIGITAL TABLET	C	0140789	861	2919		06/20/1990	
01100	Ku RECEIVER (GI)	C	AC404058986	861	2916		08/10/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002041	861			08/10/1990	
6104	-HARDIN COUNTY K-12 SCHOOL							
00100	AUDIO VIDEO UNIT	C	831	831	2710		06/27/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812689	831	2711		06/27/1990	
00333	TEKNIKA VCR 782	C	A75A19626	831	2713		09/10/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205151	831	2718		06/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	831			10/02/1990	
00600	NUMONICS DIGITAL TABLET	C	300160	831	2719		06/27/1990	
01100	Ku RECEIVER (GI)	C	MAC3100009961	831	2716		06/27/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001673	831			08/07/1990	
6176	-HARRISBURG HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	832	832	2720		06/27/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812854	832	2721		06/27/1990	
00334	TEKNIKA VCR 881	C	D03913596	832	2723		11/02/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205152	832	2728		06/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	832			10/02/1990	
00600	NUMONICS DIGITAL TABLET	C	300194	832	2729		06/27/1990	
01100	Ku RECEIVER (GI)	C	MAC3120102325	832	2726		06/27/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001429	832			08/14/1990	
3099	-HART HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1061	1062	4122		06/20/1990	
00214	TOSHIBA MONITOR CF2041	C	60489396	1062	4122		06/20/1990	

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00313	TOSHIVA VCR M-1283	C	20721675	1062	4124		06/20/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0211545	1062	4129		06/20/1990	
00510	UNIDEN XE-250 CORDLESS PHONE	C	.	1062			08/10/1990	
00530	AT&T MODEL 530, TELEPHONE	C	....	1062	4126		10/15/1990	
00600	NUMONICS DIGITAL TABLET	C	0786389	1062	4130		06/20/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	892004960	1062			06/20/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001842	1062			08/10/1990	
6115	-HATTIESBURG HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	737	737	1770		01/31/1989	
00231	TEKNICA MONITOR TJ2077	C	C50813661	737			01/31/1989	
00332	TEKNIKA VCR 882	C	D40810553	737			01/31/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0212442	737			01/31/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	737			11/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300280	737			01/31/1989	
01100	Ku RECEIVER (GI)	C	MAC3120118560	737			01/31/1989	
01500	SUBSCRIBER INTERFACE DEVICE	C	001790 (9,,,)	737			08/28/1990	
6127	-HAVANA HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	853	853	2940		06/27/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812685	853	2941		06/27/1990	
00334	TEKNIKA VCR 881	C	D03913201	853	2943		06/27/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204898	853	2948		06/27/1990	
00600	NUMONICS DIGITAL TABLET	C	300301	853	2949		06/27/1990	
01100	Ku RECEIVER (GI)	C	MAC3110049257	853	2946		06/27/1990	
4024	-HAWKINS JR HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1010	1010			09/14/1989	
00211	TOSHIBA MONITOR CF2028A	C	18415639	1010	3795		09/14/1989	
00313	TOSHIBA VCR M-1283	C	39622920	1010	3797		09/14/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0211093	1010	3802		09/14/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1010			10/12/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	892009432	1010	3800		09/14/1989	
01301	MULTIFUNCION INTERFACE UNIT (DUAL BAND)	C	8809686-715	1010			09/14/1989	
01500	SUBSCRIBER INTERFACE DEVICE	C	002042	1010			08/28/1990	
6083	-HEDLEY HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	852	852	2930		06/20/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812522	852	2931		06/20/1990	
00334	TEKNIKA VCR 881	C	D03913287	852	2933		06/20/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204691	852	2938		06/20/1990	
00530	AT&T MODEL 530, TELEPHONE	C	.	852			10/05/1990	
00600	NUMONICS DIGITAL TABLET	C	300286	852	2939		06/20/1990	
01100	Ku RECEIVER (GI)	C	AC4040467200	852	4205		09/17/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001349	852			08/03/1990	
5977	-HERLONG HIGH SCHOOL							

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00100	AUDIO VIDEO UNIT	C	/04	704	1450		06/22/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813626	704	1451		06/22/1990	
00332	TEKNIKA VCR 882	C	D48810135	704	1453		06/22/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211033	704	1458		06/22/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	704			10/17/1990	
00600	NUMONICS DIGITAL TABLET	C	300215	704	1459		06/22/1990	
01100	Ku RECEIVER (GI)	C	MAC3120125850	704	3226		07/24/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001094	704			07/24/1990	
5751	-HESPERIA HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	710	710	1510		06/25/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813716	710	1511		06/25/1990	
00319	TOSHIBA VCR M-220	C	19630019	710	1513		11/15/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211058	710	1518		06/25/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	710			10/15/1990	
00600	NUMONICS DIGITAL TABLET	C	300209	710	1519		06/25/1990	
01100	Ku RECEIVER (GI)	C	MAC3120132846	710	1516		08/21/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001844 (9,,,)	710			08/26/1990	
4105	-HIGHLANDS COMMUNITY COLLEGE							
00100	AUDIO VIDEO UNIT	C	981	981	3565		06/27/1990	
00211	TOSHIBA MONITOR CF2028A	C	18415586	981	3485		06/27/1990	
00313	TOSHIVA VCR M-1283	C	39620708	981	3568		06/27/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210750	981	3573		06/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	981			10/01/1990	
01100	Ku RECEIVER (GI)	C	AC3110030065	981	3571		08/10/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001437 (9,,,)	981			08/14/1990	
5929	-HIGHLANDS HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	728	728	1690		06/20/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813628	728	1691		06/20/1990	
00332	TEKNIKA VCR 882	C	D48810880	728	1693		06/20/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0212441	728	1698		06/20/1990	
00600	NUMONICS DIGITAL TABLET	C	300135	728	1699		06/20/1990	
01100	Ku RECEIVER (GI)	C	704099281	728			06/20/1990	
5926	-HILLCREST HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	655	655	1019		03/09/1989	
00211	TOSHIBA MONITOR CF2028A	C	58425982	655	1020		03/09/1989	
00311	TOSHIBA VCR M-6003	C	25638310	655	1022		03/09/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211171	655	1027		03/09/1989	
00600	NUMONICS DIGITAL TABLET	C	300263	655	5979		01/05/1989	
01100	Ku RECEIVER (GI)	C	MAC3120103416	655			03/09/1989	
	-HILMAR JR/SR HIGH SCHOOL							
[illegible]100	AUDIO VIDEO UNIT	C	716	716	1570		06/22/1990	
[illegible]231	TEKNICA MONITOR TJ2077	C	C50813766	716	1571		06/22/1990	

RESOURCE CODE	RESOURCE NAME	WHO OWNS	SERIAL NUMBER	CART NUMBER	STAR NUMBER	ASSET NUMBER	INSTALLATION DATE	LAST MAINT
00334	TEKNIKA VCR 881	C	D48810822	716	1573		06/22/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0210098	716	1578		06/22/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	760			10/15/1990	
00600	NUMONICS DIGITAL TABLET	C	300176	716	1579		06/22/1990	
01100	Ku RECEIVER (GI)	C	AC4040461113	716	1652		08/02/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001124	760			08/02/1990	
6007	-HOBBTON HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	782	782	2230		05/22/1990	
00231	TEKNIKA MONITOR TJ2077	C	C50813712	782	2231		05/22/1990	
00316	TOSHIBA VCR M-7603	C	29631942	782	2233		05/22/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205096	782	2238		05/22/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	782			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	0151389	782	2239		05/22/1990	
01100	Ku RECEIVER (GI)	C	AC4020183876	782			05/22/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001280	782			07/17/1990	
5924	-HOLT HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	650	650	1001		03/09/1989	
00216	TOSHIBA MONITOR CF2048	C	58413073	650	1002		03/09/1989	
00311	TOSHIBA VCR M-6003	C	25626995	650	1004		03/09/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0210857	650	1009		03/09/1989	
00600	NUMONICS DIGITAL TABLET	C	300265	650	5977		01/06/1990	
01100	Ku RECEIVER (GI)	T	MAC4020126446	650	1007		03/09/1989	
4110	-HONDO HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	736	736	1760		06/27/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813651	736	1761		06/27/1990	
00332	TEKNIKA VCR 882	C	048810442	736	1763		06/27/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0212443	736	1768		06/27/1990	
00510	UNIDEN XE-250 CORDLESS PHONE	C	94076312	736			07/19/1990	
00530	AT&T MODEL 530, TELEPHONE	C	.	736	4110		10/15/1990	
00600	NUMONICS DIGITAL TABLET	C	300200	736	1769		06/27/1990	
01100	Ku RECEIVER (GI)	C	MAC3120126030	736	4193		06/27/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001040	736			07/19/1990	
5909	-HOPI JR/SR HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	701	701	1420		06/01/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813671	701	1421		06/01/1990	
00332	TEKNIKA VCR 882	C	D48810173	702	1423		06/01/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211035	7010	1428		06/01/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	701			10/15/1990	
00600	NUMONICS DIGITAL TABLET	C	02211035	701	1429		06/01/1990	
01100	Ku RECEIVER (GI)	C	AC4040424156	701	1426		06/01/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001073	701			07/30/1990	
5977	-HUBBERTVILLE HIGH SCHOOL							

RESOURCE CODE	RESOURCE NAME	WHO OWNS	SERIAL NUMBER	CART NUMBER	STAR NUMBER	ASSET NUMBER	INSTALLATION DATE	LAST MAINT
00100	AUDIO VIDEO UNIT	C	685	685	1280		03/09/1989	
00211	TOSHIBA MONITOR CF2028A	C	58425894	685	1281		03/09/1989	
00311	TOSHIBA VCR M-6003	C	25332007	685	1283		03/09/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0216976	685	NONE		01/10/1990	
00600	NUMONICS DIGITAL TABLET	C	11037	685	1269		03/09/1989	
01100	Ku RECEIVER (G1)	T	AC4020144401	685	4195		09/08/1989	
6036 -ILLINI CENTRAL HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	854	854	2950		06/28/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812658	854	2951		06/28/1990	
00334	TEKNIKA VCR 881	C	D03913512	334	2953		06/28/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204805	854	2958		06/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	854			09/25/1990	
00600	NUMONICS DIGITAL TABLET	C	300260	854	2959		06/28/1990	
01100	Ku RECEIVER (G1)	C	MAC3110014304	854	2956		01/28/1991	
01500	SUBSCRIBER INTERFACE DEVICE	C	001630	854			08/01/1990	
6029 -IMPERIAL HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	709	709	1500		06/22/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813722	709	1501		06/22/1990	
00332	TEKNIKA VCR 882	C	D48810869	709	1503		06/22/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221311	709	1508		06/22/1990	
00600	NUMONICS DIGITAL TABLET	C	300208	709	1509		06/22/1990	
01100	Ku RECEIVER (GI)	C	MAC3120109075	709	1506		06/22/1990	
4033 -INGRAM TOM MOORE HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	1074	1074	4171		06/22/1990	
002[illegible]4	TOSHIBA MONITOR CF2041	C	60489421	1074	4172		06/22/1990	
003[illegible]3	TOSHIVA VCR M-1283	C	207220202	1074	4174		06/22/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205917	062290	4179		06/22/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1074			10/04/1990	
00600	NUMONICS DIGITAL TABLET	C	0784309	1074	4180		06/22/1990	
01202	C band RECEIVER, TRACKER B PLUS	C	892207341	1074	4177		06/22/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002063	1074			08/02/1990	
6128 -IROQUOIS AREA REG. DEL. SYS.								
00100	AUDIO VIDEO UNIT	C	839	839	839		06/27/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812692	839	2791		06/27/1990	
00334	TEKNIKA VCR 881	C	D03913231	839	2793		06/27/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204901	839	2790		06/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	839			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300257	839	2799		06/27/1990	
01100	Ku RECEIVER (GI)	C	AC3110038200	839	4128		06/27/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001691	839			08/10/1990	
6049 -JAYTON-GIRARD HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	848	848	2890		06/20/1990	

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00231	TEKNICA MONITOR TJ2077	C	C49812481	848	2891		06/20/1990	
00334	TEKNIKA VCR 881	C	D03913038	848	2893		06/20/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205912	848	2878		06/20/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	848			09/25/1990	
00600	NUMONICS DIGITAL TABLET	C	300261	848	2899		06/20/1990	
01100	Ku RECEIVER (GI)	C	AC3110017691	848			07/30/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001497	848			07/30/1990	
5949	-JOHN ESSEX HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	667	667	1118		01/20/1990	
00211	TOSHIBA MONITOR CF2028A	C	58425915	667	1119		01/06/1990	
00310	TOSHIBA VCR M-6000	C	69323292	667	1121		01/06/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211170	667	1126		01/06/1990	
00600	NUMONICS DIGITAL TABLET	C	300288	667	1118		01/06/1990	
01100	Ku RECEIVER (GI)	T	MAC3120124948	667	NONE		01/18/1990	
5931	-KEITH HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	742	742	1820		05/31/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813754	742	1821		05/31/1990	
00332	TEKNIKA VCR 882	C	D48810793	742	1823		05/31/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221836	742	1828		05/31/1990	
00600	NUMONICS DIGITAL TABLET	C	300293	[illegible]	1629		05/31/1990	
01100	Ku RECEIVER (GI)	C	AC3120112844	[illegible]			05/31/1990	
4000	-KENNARD HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1047	1047	3971		06/20/1990	
00214	TOSHIBA MONITOR CF2041	C	60481909	1047	3972		06/20/1990	
00318	TOSHIBA VCR M-120	C	22727455	1047	3974		09/21/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0211630	1047	3979		06/20/1990	
00530	AT&T MODEL 530, TELEPHONE	C	.	1047			10/03/1990	
00600	NUMONICS DIGITAL TABLET	C	0784889	1047	3980		06/20/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	89181225	1047	3977		06/20/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002028	1047			07/08/1990	
5736	-KNIPPA HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1042	1042	3931		06/20/1990	
00214	TOSHIBA MONITOR CF2041	C	60489515	1042	3932		06/20/1990	
00317	TOSHIBA VCR M-5483	C	18638985	1042	3934		06/20/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0211633	1042	3939		06/20/1990	
00530	AT&T MODEL 530, TELEPHONE	C	NONE	1042			09/21/1990	
00600	NUMONICS DIGITAL TABLET	C	0785989	1042	3940		06/20/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	892203012	1042	3937		06/20/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001055	1042			07/19/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001055 (1,,,,)	1057			07/19/1990	
6094	-KOPPERL HIGH SCHOOL							
100	AUDIO VIDEO UNIT	C	879	879	3180		06/20/1990	

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00231	TEKNICA MONITOR TJ2077	C	C49810886	879	3180		06/20/1990	
00312	TOSHIBA VCR M-6007	C	21632274	879	3183		06/20/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205138	879	3188		06/20/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	879			10/17/1990	
00600	NUMONICS DIGITAL TABLET	C	300202	879	3189		06/20/1990	
01100	Ku RECEIVER (GI)	C	AC3120105666	879	3879		06/20/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001466	879			07/25/1990	
6148	-KOSSUTH HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	922	922			05/18/1989	
00211	TOSHIBA MONITOR CF2028A	C	14514639	922			05/18/1989	
00312	TOSHIBA VCR M-6007	C	21631396	922			05/18/1989	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210474	922			05/18/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	922			10/15/1990	
01100	Ku RECEIVER (GI)	C	AC3120089995	922			08/21/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002072	922			08/22/1990	
5986	-LA HARPE HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	803	803	2430		06/27/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812577	803	2431		06/27/1990	
00334	TEKNIKA VCR 881	C	D03913131	803	2433		06/27/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0203625	803	2438		06/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	803			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300224	803	2439		06/27/1990	
01100	Ku RECEIVER (GI)	C	MAC311005675	803	2436		06/27/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001589	803			08/02/1990	
6166	-LA SALLE-PERU VOC CTR							
00100	AUDIO VIDEO UNIT	C	849	849	2900		06/28/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812653	849	2901		06/28/1990	
00334	TEKNIKA VCR 881	C	D03913221	849	2903		06/28/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205150	849	2908		06/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	849			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300205	849	2909		06/28/1990	
01100	Ku RECEIVER (GI)	C	MAC3120122586	849	2766		06/28/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001637 (9,,,)	849			08/13/1990	
7072	-LAGUNA-ACOMA HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1065	1065			01/15/1991	
00214	TOSHIBA MONITOR CF2041	C	60490159	1065			01/15/1991	
00313	TOSHIBA VCR M-1283	C	20721991	1065			01/15/1991	
00421	PRINTER SEIKOSHA SP-1600AI	C	0211360	1065			01/15/1991	
00530	AT&T MODEL 530, TELEPHONE	C	.	1065			01/15/1991	
01202	C band RECEIVER, TRACKER 8 PLUS	C	892207161	1065			01/15/1991	
01500	SUBSCRIBER INTERFACE DEVICE	C	001004	1065			01/15/1991	

-LAKE LAND COMMUNITY COLLEGE

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00100	AUDIO VIDEO UNIT	C	843	843	2840		06/29/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812879	843	2841		06/29/1990	
00334	TEKNIKA VCR 881	C	D31914050	843	3066		06/29/0990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204732	843	2848		06/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	643			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300141	843	2849		06/28/1990	
01100	Ku RECEIVER (GI)	C	AC3120117041	843	2846		06/28/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001666	643			08/10/1990	
6067 -LAKEWOOD HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	784	784	2250		05/22/1990	
00231	TEKNIKA MONITOR TJ2077	C	C50813667	784	2251		05/22/1990	
00332	TEKNIKA VCR 882	C	D48810647	784	2253		05/22/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0216974	784	2258		05/22/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	784			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	0216974	784	3751		05/21/1990	
01100	Ku RECEIVER (GI)	C	AC4040469123	784	2256		05/22/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002104	784			09/17/1990	
6026 -LAMAR COUNTY HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	676	676	1199		05/31/1990	
00216	TOSHIBA MONITOR CF2048	C	58413018	676	1200		05/31/1990	
00311	TOSHIBA VCR M-6003	C	25626981	676	1202		05/31/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0212146	676	1207		05/31/1990	
00600	NUMONICS DIGITAL TABLET	C	0212146	676	1207		05/31/1990	
01100	Ku RECEIVER (GI)	C	AC3120103901	676	1205		05/31/1990	
6149 -LEFLORE COUNTY HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	912	912			05/17/1989	
00231	TEKNICA MONITOR TJ2077	C	C45812029	912			05/17/1989	
00312	TOSHIBA VCR M-6007	C	21631875	912			05/17/1989	
00421	PRINTER SEIKOSHA SP-1600AI	C	0207537	912			05/17/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	912			10/13/1990	
00600	NUMONICS DIGITAL TABLET	C	0150189	912			05/17/1989	
01100	Ku RECEIVER (GI)	C	MAC3120085214	912			05/17/1989	
01500	SUBSCRIBER INTERFACE DEVICE	C	002027	912			08/21/1990	
14031 -LEUPP SCHOOLS, INC								
00100	AUDIO VIDEO UNIT	C	705	705	1460		06/01/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812857	231	1461		07/27/1990	
00334	TEKNIKA VCR 881	C	H20937193	705	1463		07/27/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0212453	705	1468		06/01/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	705			10/15/1990	
00600	NUMONICS DIGITAL TABLET	C	300178	705	1469		05/01/1990	
01100	Ku RECEIVER (GI)	C	AC4040430480	705	1466		06/01/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001099	705			07/27/1990	

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5640	-LIBERTY HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	809	809	2490		06/28/1990	
00334	TEKNIKA VCR 801	C	D31913932	809			06/28/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204867	809	2498		06/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	809			10/02/1990	
00600	NUMONICS DIGITAL TABLET	C	300226	809	2499		06/28/1990	
01100	Ku RECEIVER (GI)	C	MAC3120088656	809	2496		06/29/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001606	809			08/06/1990	
5950	-LINDEN HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	740	740	1800		01/06/1990	
00231	TEKNIKA MONITOR TJ2077	C	C50813660	740	1801		01/06/1990	
00332	TEKNIKA VCR 682	C	D48810731	740	1803		01/06/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211748	740	1808		01/06/1990	
00600	NUMONICS DIGITAL TABLET	C	300277	740	1809		01/06/1990	
01100	Ku RECEIVER (GI)	T	AC3120077654	740	1736		01/06/1990	
5901	-LITCHFIELD HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	677	677	1208		01/06/1990	
00211	TOSHIBA MONITOR CF2028A	C	50425908	677	1209		01/06/1990	
00311	TOSHIBA VCR M-6003	C	50530530	677	1211		01/06/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221233	677	1216		01/06/1990	
00600	NUMONICS DIGITAL TABLET	C	300319	677	5995		01/06/1990	
01100	Ku RECEIVER (GI)	T	AC3120122711	677	1214		01/06/1990	
6070	-LITTLEFIELD HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	798	798	2380		05/22/1990	
00231	TEKNIKA MONITOR TJ2077	C	C49813031	798	2381		05/22/1990	
00310	TOSHIBA VCR M-120	C	22724569	798	2383		09/21/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	798			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300129	798	2389		05/22/1990	
01100	Ku RECEIVER (GI)	C	AC3120129606	798	2386		05/22/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001240	798			07/18/1990	
5951	-LIVINGSTON HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	744	744	1840		01/06/1990	
00231	TEKNIKA MONITOR TJ2077	C	C50813715	744	1841		01/06/1990	
00332	TEKNIKA VCR 682	C	D48810774	744	1843		01/06/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211616	744	1848		01/06/1990	
00600	NUMONICS DIGITAL TABLET	C	300295	744	1849		01/06/1990	
01100	Ku RECEIVER (GI)	T	MAC3120076732	744	1846		01/06/1990	
4002	-LOHN HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1067	1067	4161		06/20/1990	
00214	TOSHIBA MONITOR CF2041	C	60490162	1067	4162		06/20/1990	
00312	TOSHIBA VCR M-6007	C	25531946	1067	2897		06/20/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0203845	1067	4169		06/20/1990	

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00510	UNIDEN XE-250 CORDLESS PHONE	C	.	1067			07/24/1990	
00530	AT&T MODEL 530, TELEPHONE	C	.	1067	4166		10/15/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	892208331	1067	4167		06/20/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001467	1067			07/24/1990	
6050 -LOOP HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	862	862	3010		06/21/1990	
00213	TOSKIBA MONITOR CF2033	C	19415762	862	3011		06/21/1990	
00334	TEKNIKA VCR 881	C	D03913463	862	3013		06/20/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205141	862	3015		06/20/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	862			10/14/1990	
00600	NUMONICS DIGITAL TABLET	C	300267	862	3019		06/21/1990	
01100	Ku RECEIVER (GI)	C	MAC3120059428	862	3016		06/21/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001475	862			01/08/1991	
6056 -LOUISBURG HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	779	779	2200		05/22/1990	
00231	TEKNIKA MONITOR TJ2077	C	C49812532	779	2201		05/22/1990	
00313	TOSHIBA VCR M-1283	C	20722371	779	1343		05/22/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204950	779	2208		05/22/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	779			09/27/1990	
00600	NUMONICS DIGITAL TABLET	C	0151289	779	2209		05/22/1990	
01100	Ku RECEIVER (GI)	C	AC3120085934	779	2207		05/22/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001150	779			07/19/1990	
6116 -LOUISVILLE HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	772	772	2110		06/11/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813790	772	2111		06/11/1990	
00332	TEKNIKA VCR 882	C	D48810626	772	2113		06/11/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221643	772	2118		06/11/1990	
00510	UNIDEN XE-250 CORDLESS PHONE	C	.	772			09/07/1990	
00600	NUMONICS DIGITAL TABLET	C	0147789	772	2119		06/11/1990	
01100	Ku RECEIVER (GI)	C	MAC3120088162	772			09/03/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002143	772			09/07/1990	
5887 -LOWER BRULE DAY SCHOOL								
00100	AUDIO VIDEO UNIT	C	697	697	1380		06/15/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813637	697	1381		06/15/1990	
00332	TEKNIKA VCR 882	C	D48810555	697	1383		06/15/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221534	697	1388	061590	06/15/1990	
00600	NUMONICS DIGITAL TABLET	C	300213	697	1389		06/15/1990	
01100	Ku RECEIVER (GI)	C	3120061184	697	1386		06/15/1990	
5894 -MADRAS HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	724	724	1650		06/15/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813580	724	1651		06/15/1990	
00333	TEKNIKA VCR 782	C	A7SA10990	724			06/15/1990	

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00420	PRINTER SEIKOSHA SP-1200AI	C	0221313	724	1658		06/15/1990	
00510	UNIDEN XE-250 CORDLESS PHONE	C	.	724			07/17/1990	
00530	AT&T MODEL 530, TELEPHONE	C	.	724	1654		10/16/1990	
00600	NUMONICS DIGITAL TABLET	C	300138	724	1659		06/15/1990	
01100	Ku RECEIVER (GI)	C	MAC3120064312	724	5950		07/16/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002200	724			10/17/1990	
4023	-MAGNOLIA JR HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1016	1016	3854		06/11/1990	
00211	TOSHIBA MONITOR CF2028A	C	18415579	1016	3855		06/11/1990	
00314	TOSHIBA VCR M-1207	C	18633562	1016	3857		06/11/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0206179	1016	3862		06/11/1990	
00600	NUMONICS DIGITAL TABLET	C	0778789	1016	3863		06/11/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	892206078	1016	3860		08/29/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001911	1016	...			
5953	-MARENGO HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	739	739	1790		01/06/1990	
00231	TEKNIKA MONITOR TJ2077	C	C49813240	739	1791		01/06/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221476	739	1798		01/06/1990	
00600	NUMONICS DIGITAL TABLET	C	300278	739	1799		01/06/1990	
01100	Ku RECEIVER (GI)	T	84616052	739	1794		01/06/1990	
5952	-MARION HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	663	663	1082		05/31/1990	
00211	TOSHIBA MONITOR CF2028A	C	58425895	663	1083		05/31/1990	
00311	TOSHIBA VCR M-6003	C	58530499	663	1085		05/31/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	02112463	663	1040		05/31/1990	
00600	NUMONICS DIGITAL TABLET	C	0149089	663	5986		05/31/1990	
5342	-MARTINSVILLE HIGH SCHOOL							
00231	TEKNICA MONITOR TJ2077	C	C49812891	879	3151		06/20/1990	
00312	TOSHIBA VCR M-6007	C	21632330	876	3153		06/20/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210150	876	3158		06/21/1990	
00510	UNIDEN XE-250 CORDLESS PHONE	C	.	876			07/08/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	876	3155		10/03/1990	
00600	NUMONICS DIGITAL TABLET	C	300205	876	3159		06/21/1990	
01100	Ku RECEIVER (GI)	C	AC4020138461	876	3156		09/18/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001903	876			07/08/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001585	876	3150		09/04/1990	
4003	-MAUD HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1045	1045	3951		06/21/1990	
00214	TOSHIBA MONITOR CF2041	C	60490093	1045	3952		06/21/1990	
00313	TOSHIVA VCR M-1203	C	20721995	1045	3954		06/21/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0211573	1045	3959		06/21/1990	
00510	UNIDEN XE-250 CORDLESS PHONE	C	.	1045			07/31/1990	

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00530	AT&T MODEL 530, TELEPHONE	C	N/A	1045	3956		10/03/1990	
00600	NUMONICS DIGITAL TABLET	C	0781689	1045	3960		06/21/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	89181575	1045	3957		06/21/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001888	1045			07/31/1990	
6117	-MCCOMB HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	761	761	2000		06/11/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813763	761	2001		06/11/1990	
00332	TEKNIKA VCR 882	C	048810685	7613	2003		06/11/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211697	761	2008		06/11/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	761	2005		10/29/1990	
00600	NUMONICS DIGITAL TABLET	C	0151789	761	2009		06/11/1990	
01100	Ku RECEIVER (GI)	C	MAC3110027883	761	2006		06/11/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001980	761			06/05/1990	
5596	-MCLEOD HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	875	875	3140		06/21/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812880	875	3141		06/21/1990	
00334	TEKNIKA VCR 881	C	D03913230	875	3143		06/21/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	02100466	875	3148		06/21/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	875			09/25/1990	
00600	NUMONICS DIGITAL TABLET	C	300298	875	3149		06/21/1990	
01100	Ku RECEIVER (GI)	C	MAC3120058506	875	3147		06/20/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001969	875			08/01/1990	
6095	-MEDINA HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	889	889	3280		06/21/1990	
00211	TOSHIBA MONITOR CF2028A	C	21529033	889	3280		06/21/1990	
00312	TOSHIBA VCR M-6007	C	21631545	889	3283		06/21/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210105	889	3288		06/21/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	889			10/19/1990	
00600	NUMONICS DIGITAL TABLET	C	300272	889	3289		06/21/1990	
01100	Ku RECEIVER (GI)	C	MAC3120098286	889	3286		06/21/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001082	889			07/27/1990	
3069	-MERIDIAN HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	988	988	3644		06/28/1990	
00211	TOSHIBA MONITOR CF2028A	C	18415504	988	3645		06/28/1990	
00313	TOSHIVA VCR M-1283	C	39529754	988	3647		06/28/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205865	988	3652		06/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	988			06/25/1990	
00600	NUMONICS DIGITAL TABLET	C	0779889	988	3664		06/28/1990	
01100	Ku RECEIVER (GI)	C	AC3120123745	988	3650		06/28/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001620	988			08/03/1990	
6110	-MERIDIAN HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	774	774	2130		06/11/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813768	774	2131		06/11/1990	
00332	TEKNIKA VCR 882	C	D48810078	774	2133		06/11/1990	
420	PRINTER SEIKOSHA SP-1200AI	C	0211632	774	2138		06/11/1990	

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00530	AT&T MODEL 530, TELEPHONE	C	N/A	774			10/12/1990	
00600	NUMONICS DIGITAL TABLET	C	300316	774	2139		06/11/1990	
01100	Ku RECEIVER (GI)	C	AC4050516633	774	2136		06/04/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002221 (9,,,)	774			10/17/1990	
6064	-MIDWAY HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	791	791	2320		05/22/1990	
00231	TEKNIKA MONITOR TJ2077	C	C50813726	791	2321		05/22/1990	
00319	TOSHIBA VCR M-220	C	31520208	791	2323		11/06/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205124	791	2328		05/22/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	791			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	0151589	791	2320		05/22/1990	
01100	Ku RECEIVER (GI)	C	MAC3120128302	791			05/22/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001263	791			07/31/1990	
14004	-MILFORD HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	878	878	3170		06/21/1990	
00231	TEKNICA MONITOR TJ2077	C	049812668	878	3171		06/21/1990	
00312	TOSHIBA VCR M-6007	C	21631385	878	3172		06/21/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205140	878	3178		06/21/1990	
00600	NUMONICS DIGITAL TABLET	C	300299	878	3179		06/21/1990	
01100	Ku RECEIVER (GI)	C	MAC3120101010	878			06/21/1990	
01100	Ku RECEIVER (GI)	C	00616-704	878			06/21/1990	
5975	-MODOC HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	721	721	1620		06/22/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813612	721	1621		06/22/1990	
00332	TEKNIKA VCR 882	C	D48810069	721	1623		06/22/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211585	721	1628		06/22/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	721			10/17/1990	
00600	NUMONICS DIGITAL TABLET	C	300145	721	1629		06/22/1990	
01100	Ku RECEIVER (GI)	C	AC3120121607	721	1626		06/22/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002215	721			11/02/1990	
6037	-MONMOUTH HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	819	819	2590		06/28/1990	
00231	TEKNICA MONITOR TJ2077	C	C45812016	819	2855		06/28/1990	
00334	TEKNIKA VCR 881	C	D03913303	819	2592		06/28/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205011	819	2598		06/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	819			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300230	819	2599		06/28/1990	
01100	Ku RECEIVER (GI)	C	AC3110014192	819	2596		06/28/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001705	819			07/08/1990	
6162	-MORRISONVILLE ELEMENTARY SCHL							
00100	AUDIO VIDEO UNIT	C	822	822	2620		06/28/1990	
?231	TEKNICA MONITOR TJ2077	C	C49812550	822	2621		06/28/1990	

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00334	TEKNIKA VCR 881	C	D03913460	822	2623		06/28/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204915	822	2628		06/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	822			09/25/1990	
00600	NUMONICS DIGITAL TABLET	C	300225	822	2629		06/28/1990	
01100	Ku RECEIVER (GI)	C	AC3100011366	822			08/09/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001639	822			08/10/1990	
6045	-MOSS POINT HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	755	755	2160		06/11/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813764	755	2161		06/11/1990	
00332	TEKNIKA VCR 882	C	D48810259	755	2163		06/11/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221701	755	2168		06/11/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	755	2164		10/30/1990	
00600	NUMONICS DIGITAL TABLET	C	0147089	755	2169		06/11/1990	
01100	Ku RECEIVER (GI)	C	AC4030339634	755			08/30/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001653	755			10/30/1990	
3070	-MULBERRY GROVE HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	985	985	3601		06/28/1990	
00211	TOSHIBA MONITOR CF2028A	C	18415747	985	3521		06/28/1990	
00313	TOSHIBA VCR M-1283	C	39620923	985	3604		06/28/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210520	985	3609		06/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	985			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	0779489	985	3667		06/28/1990	
01100	Ku RECEIVER (GI)	C	MAC3110018073	985			06/28/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001522	985			08/08/1990	
6300	-NATCHEZ HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1007	1007			09/12/1989	
00211	TOSHIBA MONITOR CF2028A	C	18415505	1007			09/12/1989	
00317	TOSHIBA VCR M-5483	C	18633786	1007			09/12/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0205809	1007			09/12/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1007			10/15/1990	
00600	NUMONICS DIGITAL TABLET	C	2206-030C	1007			09/12/1989	
01202	C band RECEIVER, TRACKER 8 PLUS	C	90041075	1007			01/09/1991	
01500	SUBSCRIBER INTERFACE DEVICE	C	002013	1007			09/07/1990	
6119	-NATCHEZ MIDDLE SCHOOL							
00100	AUDIO VIDEO UNIT	C	1006	1006			09/28/1989	
00231	TEKNICA MONITOR TJ2077	C	C50813725	1006			09/28/1989	
00332	TEKNIKA VCR 882	C	D48810769	1006			09/28/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221834	1006			09/28/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1006			10/15/1990	
01100	Ku RECEIVER (GI)	C	MAC4020136705	1006			09/28/1989	
01500	SUBSCRIBER INTERFACE DEVICE	C	001718	1006			09/04/1990	

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-NATCHEZ-ADAMS VO-TECH

RESOURCE CODE	RESOURCE NAME	WHO OWNS	SERIAL NUMBER	CART NUMBER	STAR NUMBER	ASSET NUMBER	INSTALLATION DATE	LAST MAINT
00100	AUDIO VIDEO UNIT	C	756	756			04/27/1989	
00231	TEKNICA MONITOR TJ2077	C	C50813725	756			04/27/1989	
00332	TEKNIKA VCR 802	C	D40810716	756			01/12/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221034	756			04/27/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	756			10/15/1990	
00600	NUMONICS DIGITAL TABLET	C	30012	756			04/27/1989	
01100	Ku RECEIVER (GI)	C	MAC312006[illegible]0436	756			09/11/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001006	756			09/04/1990	
6030	-NEEDLES HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	722	722	1630		06/25/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813681	722	1641		06/25/1990	
00332	TEKNIKA VCR 802	C	D40810750	722	1633		06/25/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0210864	722	1639		06/25/1990	
00600	NUMONICS DIGITAL TABLET	C	300133	722	1639		06/25/1990	
01100	Ku RECEIVER (GI)	C	AC3120105306	722	1637		06/25/1990	
6096	-NEWCASTLE HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	864	864	3030		06/21/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812875	864	3031		06/21/1990	
00334	TEKNIKA VCR 801	C	D03913226	864	3033		06/21/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211292	864	3038		06/21/1990	
00510	UNIDEN XE-250 CORDLESS PHONE	C	.	864			07/23/1990	
00530	AT&T MODEL 530, TELEPHONE	C	.	864	303[illegible]		10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300116	864	3039		06/21/1990	
01100	Ku RECEIVER (GI)	C	4050516688	864	3036		06/21/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001365	864			07/23/1990	
6061	-NORTH EDGECOMBE HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	781	781	2220		05/22/1990	
00232	TEKNIKA MONITOR FH202	C	C49813177	781	2221		05/22/1990	
00316	TOSHIBA VCR M-7603	C	50527781	781	2223		05/22/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0205147	781	2228		05/22/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	781			09/27/1990	
00600	NUMONICS DIGITAL TABLET	C	0149389	781	2229		05/22/1990	
01100	Ku RECEIVER (GI)	C	MAC3120065763	781	2226		07/24/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001195	781			07/24/1990	
5981	-NORTH HOPKINS HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	874	874	3130		06/21/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812609	874	3131		06/21/1990	
00335	TEKNIKA VCR 802	C	D40810725	874	3133		09/10/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210469	874	3138		06/21/1990	
00510	UNIDEN XE-250 CORDLESS PHONE	C	.	874			07/31/1990	
00530	AT&T MODEL 530, TELEPHONE	C	.	874	3135		10/01/1990	
600	NUMONICS DIGITAL TABLET	C	300256	874	3139		06/21/1990	
100	Ku RECEIVER (GI)	C	AC4040403117	874	3136		06/21/1990	
500	SUBSCRIBER INTERFACE DEVICE	C	001881	874			07/31/1990	

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6005	-NORTH STOKES JR/SR HIGH SCHL							
00100	AUDIO VIDEO UNIT	C	789	789	2300		05/22/1990	
00231	TEKNIKA MONITOR TJ2077	C	C50813641	789	2301		05/22/1990	
00310	TOSHIBA VCR M-6000	C	23323903	789	2303		05/22/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205097	789	2308		05/22/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	489			11/28/1990	
00600	NUMONICS DIGITAL TABLET	C	300198	789	2308		05/22/1990	
01100	Ku RECEIVER (GI)	C	AC4040453790	789			10/19/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002155	489			10/16/1990	
6004	-NORTHEAST JONES HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1018	1018			09/13/1989	
00211	TOSHIBA MONITOR CF2028A	C	18415780	1018			09/13/1989	
00334	TEKNIKA VCR 881	C	D31913991	1018			09/01/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0211090	1018			06/13/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1018			10/12/1990	
00600	NUMONICS DIGITAL TABLET	C	0783789	1018			09/13/1989	
01202	C band RECEIVER, TRACKER 8 PLUS	C	892207154	1018			09/13/1989	
01500	SUBSCRIBER INTERFACE DEVICE	C	001793	1018			09/07/1990	
14005	-NORTHSIDE HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1046	1046	3961		06/21/1990	
00211	TOSHIBA MONITOR CF2028A	C	1451714	1046	3962		06/21/1990	
00317	TOSHIBA VCR M-5483	C	18636343	1046	3964		06/21/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0211762	1046	3969		06/21/1990	
00510	UNIDEN XE-250 CORDLESS PHONE	C	.	878			07/26/1990	
00600	NUMONICS DIGITAL TABLET	C	0764789	1046	3970		06/21/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	892009373	1046	3907		06/21/1990	
881 00100	-NORTHSIDE HIGH SCHOOL AUDIO VIDEO UNIT	C	866	866	3050		06/21/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812673	866	3051		06/21/1990	
00312	TOSHIBA VCR M-6007	C	21632289	866	3053		06/21/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210186	866	3058		06/21/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	866			09/25/1990	
00600	NUMONICS DIGITAL TABLET	C	300155	866	3059		06/21/1990	
01100	Ku RECEIVER (GI)	C	AC311003218	866	3056		06/21/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002179	866			09/17/1990	
6027	-NORTHVIEW HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	758	758	1950		01/06/1990	
00231	TEKNIKA MONITOR TJ2077	C	D50813779	758	1951		01/06/1990	
00332	TEKNIKA VCR 682	C	D48810561	758	1953		01/06/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211699	758	1958		01/06/1990	
00600	NUMONICS DIGITAL TABLET	C	300143	758	1959		01/06/1990	
01100	Ku RECEIVER (GI)	T	MAC312009148	758	1043		01/06/1990	
3	-NORTHWESTERN JR/SR HS							

RESOURCE CODE	RESOURCE NAME	WHO OWNS	SERIAL NUMBER	CART NUMBER	STAR NUMBER	ASSET NUMBER	INSTALLATION DATE	LAST MAINT
00100	AUDIO VIDEO UNIT	C	977	977	3493		06/28/1990	
00211	TOSHIBA MONITOR CF2028A	C	18415806	977	3494		06/28/1990	
00314	TOSHIBA VCR M-1287	C	21533679	977	3496		06/28/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0207488	977	3501		06/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	977			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	0485189	977	3628		06/28/1990	
01100	Ku RECEIVER (GI)	C	AC3110055333	977			06/28/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001641	977	.		08/02/1990	
3063	-NOXAPATER ATTENDANCE CENTER							
00100	AUDIO VIDEO UNIT	C	1019	1019			06/06/1989	
00213	TOSKIBA MONITOR CF2033	C	37518098	1019	3883		09/18/1990	
00314	TOSHIBA VCR M-1287	C	19525464	1019			01/15/1991	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210767	1019			09/06/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1019			10/12/1990	
01204	C band RECEIVER, TRACKER PLUS (new prog)	C	90121152	1019	3888		10/18/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001972	1019			09/04/1990	
5880	-OAKVILLE JR/SR HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	708	708	1490		06/25/1990	
00100	AUDIO VIDEO UNIT	C	1139	1139			08/06/1990	
00213	TOSHIBA MONITOR CF2033	C	37518649	1139			01/17/1991	
00231	TEKNICA MONITOR TJ2077	C	C50813659	708	1491		06/25/1990	
00332	TEKNIKA VCR 882	C	D48810826	708	1493		06/25/1990	
00334	TEKNIKA VCR 881	C	H43945609	1139			08/06/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211099	708	1498		06/25/1990	
00422	PRINTER SEIKOSHA SP-2000	C	0207974	1139			08/06/1990	
00510	UNIDEN XE-250 CORDLESS PHONE	C	.	1139			07/13/1990	
00530	AT&T MODEL 530, TELEPHONE	C	.	708	1494		10/15/1990	
00530	AT&T MODEL 530, TELEPHONE	C	.	708			10/15/1990	
00600	NUMONICS DIGITAL TABLET	C	300183	708	1499		06/25/1990	
01100	Ku RECEIVER (GI)	C	MAC3110014078	708	1288		06/25/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	89321167	1139			08/06/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001121	1139			07/13/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001116	708			10/01/1990	
6052	-OGLESBY SCHOOL DISTRICT							
00100	AUDIO VIDEO UNIT	C	887	887	3260		06/21/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812638	887	3261		06/21/1990	
00334	TEKNIKA VCR 881	C	D03913358	887	3263		06/21/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210140	887	3268		06/21/1990	
00600	NUMONICS DIGITAL TABLET	C	300324	887	3269		06/21/1990	
01100	Ku RECEIVER (GI)	C	AC3120065752	887	3266		06/21/1990	
[illegible]	-OLIVE BRANCH HIGH SCHOOL							
[illegible]100	AUDIO VIDEO UNIT	C	776	776			02/09/1989	
[illegible]	TEKNICA MONITOR TJ2077	C	C50813622	776			02/09/1989	

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00421	PRINTER SEIKOSHA SP-1600AI	C	0205148	776			02/09/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	776			10/15/1990	
00600	NUMONICS DIGITAL TABLET	C	0149689	776			02/09/1989	
01100	Ku RECEIVER (GI)	C	MAC3110033406	776			09/04/1990	
01100	Ku RECEIVER (GI)	C	MAC3110033406	776			02/09/1989	
01500	SUBSCRIBER INTERFACE DEVICE	C	002118	776			09/04/1990	
6173	-OLNEY COMMUNITY COLLEGE							
00100	AUDIO VIDEO UNIT	C	810	810	2500		06/28/1990	
00213	TOSKIBA MONITOR CF2033	C	3150/375	810			08/10/1990	
00334	TEKNIKA VCR 881	C	D31913997	810			06/28/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204926	810	2508		06/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	810			10/02/1990	
00600	NUMONICS DIGITAL TABLET	C	300232	810	2509		06/28/1990	
01100	Ku RECEIVER (GI)	C	AC3120131665	810			06/28/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001597	810			08/08/1990	
6125	-ONEIDA TRIBAL SCHOOL							
00100	AUDIO VIDEO UNIT	C	700	700	1410		06/25/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813581	700	1411		06/25/1990	
00334	TEKNIKA VCR 881	C	H43944703	700	1413		09/18/1990	08/02/1990
00420	PRINTER SEIKOSHA SP-1200AI	C	0211057	700	1418		06/25/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	700			09/25/1990	
01100	Ku RECEIVER (GI)	C	MAC311001873	700			06/25/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001858	700			08/01/1990	
14006	-PALMER HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1049	1049	3991		06/21/1990	
00214	TOSHIBA MONITOR CF2041	C	60489519	1049	3992		06/21/1990	
00317	TOSHIBA VCR M-5483	C	18638931	1049	3994		06/21/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0211632	1049	3999		06/21/1990	
00600	NUMONICS DIGITAL TABLET	C	0781589	1049	4000		06/21/1990	
01100	Ku RECEIVER (GI)	C	892006996	1049	3997		06/21/1990	
5954	-PARAMOUNT HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	751	751	1910		05/31/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813615	751	1911		05/31/1990	
00332	TEKNIKA VCR 882	C	D48810550	751	1913		05/31/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221627	751	1918		05/31/1990	
00600	NUMONICS DIGITAL TABLET	C	0221627	751	1919		05/31/1990	
01100	Ku RECEIVER (GI)	C	MAC3110035781	751	1916		05/31/1990	
6080	-PASCAGOULA HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	760	760	1990		06/11/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813709	760	1991		06/11/1990	
00332	TEKNIKA VCR 882	C	D48810900	760	1993		06/11/1990	
421	PRINTER SEIKOSHA SP-1600AI	C	0205914	760	5954		06/11/1990	

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00530	AT&T MODEL 530, TELEPHONE	C	N/A	760	7995		10/12/1990	
00600	NUMONICS DIGITAL TABLET	C	300305	760	1999		06/11/1990	
01100	Ku RECEIVER (GI)	C	AC3110020367	760	1996		12/05/1989	
01500	SUBSCRIBER INTERFACE DEVICE	C	001797	760			08/30/1990	
4032	-PASCAGOULA VOC-TEC CENTER							
00100	AUDIO VIDEO UNIT	C	1009	1009	3784		06/11/1990	
00211	TOSHIBA MONITOR CF2028A	C	18415656	1009	3785		06/11/1990	
00317	TOSHIBA VCR M-1287	C	18634503	1009	3787		06/11/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205950	1009	3792		06/11/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1009	3789		10/12/1990	
01204	C band RECEIVER, TRACKER PLUS (new prog)	C	90122234	1009	3790		11/06/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002001	1006			09/18/1990	
5955	-PEARSALL HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	683	683	1329		06/21/1990	
00216	TOSHIBA MONITOR CF2048	C	58413030	683	1329		06/21/1990	
00310	TOSHIBA VCR M-6000	C	69323240	683	1332		06/21/1990	
00422	PRINTER SEIKOSHA SP-2000	C	0232946	683	1337		09/21/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	683			10/04/1990	
00600	NUMONICS DIGITAL TABLET	C	300219	683	1338		06/21/1990	
01100	Ku RECEIVER (GI)	C	AC4040447152	683	1335		01/28/1991	
01500	SUBSCRIBER INTERFACE DEVICE	C	001052	683			07/17/1990	
6171	-PEKIN AREA VO TECH							
00100	AUDIO VIDEO UNIT	C	818	818	2580		01/27/1989	
00231	TEKNICA MONITOR TJ2077	C	C49812477	818	2581		04/27/1989	
00334	TEKNIKA VCR 881	C	D03913173	818	2583		04/27/1989	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204866	818	2588		04/27/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	818			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300227	818	2589		04/27/1989	
01100	Ku RECEIVER (GI)	C	MAC3120122608	818	1376		04/27/1989	
01500	SUBSCRIBER INTERFACE DEVICE	C	001626	818			08/01/1990	
4065	-PENELOPE HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	884	884	3230		06/21/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812605	885	3231		06/21/1990	
00318	TOSHIBA VCR M-120	C	22726947	884	3233		09/28/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210187	884	3238		06/21/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	884			09/28/1990	
00600	NUMONICS DIGITAL TABLET	C	300275	884	3229		06/21/1990	
01100	Ku RECEIVER (GI)	C	MAC3120109795	884			09/28/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001370	884			07/26/1990	
5956	-PICKENS COUNTY HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	660	660	1055		05/31/1989	
?11	TOSHIBA MONITOR CF2028A	C	58425937	660	1056		05/31/1990	

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00313	TOSHIVA VCR M-1283	C	20722151	660			05/31/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221208	660	1063		05/31/1990	
00530	AT&T MODEL 530, TELEPHONE	C	.	660			10/12/1990	
01100	Ku RECEIVER (GI)	C	MAC3110016148	660	1061		05/31/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002053	660			08/29/1990	
6038 -PITTSFIELD HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	794	794	2340		03/28/1989	
00231	TEKNICA MONITOR TJ2077	C	C49812569	794	2341		03/28/1989	
00310	TOSHIBA VCR M-6000	C	69323054	794	2343		03/28/1989	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205158	794	2348		03/28/1989	
00510	UNIDEN XE-250 CORDLESS PHONE	C	.	794			08/09/1990	
00600	NUMONICS DIGITAL TABLET	C	300244	794	2349		03/28/1989	
01100	Ku RECEIVER (GI)	C	MAC3120131632	794	2346		03/28/1989	
01500	SUBSCRIBER INTERFACE DEVICE	C	001592	794			08/09/1990	
5992 -PLEASANT HILL HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	793	793	2170		03/09/1989	
00231	TEKNICA MONITOR TJ2077	C	C50813695	793	2171		03/09/1989	
00310	TOSHIBA VCR M-6000	C	23320287	793	2173		03/09/1989	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205128	793	2178		03/09/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	793			10/02/1990	
00600	NUMONICS DIGITAL TABLET	C	300243	793	2179		03/09/1989	
01100	Ku RECEIVER (GI)	C	AC3120121056	793	2176		03/09/1989	
01500	SUBSCRIBER INTERFACE DEVICE	C	001701	793			08/01/1990	
5128 -PLIOCENE RIDGE SCHOOL								
00100	AUDIO VIDEO UNIT	C	717	717			07/27/1990	
00213	TOSKIBA MONITOR CF2033	C	37518174	717			09/18/1990	
00314	TOSHIBA VCR M-1287	C	18633930	717			07/27/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221351	717			07/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	717			10/15/1990	
01100	Ku RECEIVER (GI)	C	AC3120095226	717			07/27/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001103	717			07/30/1990	
3001 -POOLVILLE HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	855	855	2960		06/21/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812843	855	2961		06/21/1990	
00334	TEKNIKA VCR 881	C	D03913120	855	2963		06/21/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205911	855	2968		06/21/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	855			10/10/1990	
00600	NUMONICS DIGITAL TABLET	C	300128	855			06/21/1990	
01100	Ku RECEIVER (GI)	C	AC3110056762	855			06/21/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001393	855			07/23/1990	
6105 -POPE COUNTY HIGH SCHOOL								
[illegible]100	AUDIO VIDEO UNIT	C	830	830	2700		04/19/1989	

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00231	TEKNICA MONITOR TJ2077	C C49812505	830	2701		04/19/1989	
00334	TEKNIKA VCR 881	C D03913286	830	2703		04/19/1989	
00421	PRINTER SEIKOSHA SP-1600AI	C 0205139	830	2708		04/19/1989	
00530	AT&T MODEL 530, TELEPHONE	C N/A	830			10/02/1990	
00600	NUMONICS DIGITAL TABLET	C 300139	830	2709		04/19/1989	
01100	Ku RECEIVER (GI)	C AC3120076462	830	2706		04/19/1989	
01500	SUBSCRIBER INTERFACE DEVICE	C 001669	830			07/08/1990	
4007	-POTH HIGH SCHOOL						
00214	TOSHIBA MONITOR CF2041	C 60489173	1058	4082		06/21/1990	
00313	TOSHIVA VCR M-1283	C 207211821	1058	4084		06/21/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C 0211757	1058	4089		06/21/1990	
00600	NUMONICS DIGITAL TABLET	C 0786589	1058	4090		06/21/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C 892009849	1058	4087			
6053	-PRAIRIE VALLEY HIGH SCHOOL						
00100	AUDIO VIDEO UNIT	C C49812681	856	2820		06/21/1990	
00334	TEKNIKA VCR 881	C D03913289	856	2823		06/21/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C 0203626	856	2828		06/21/1990	
00530	AT&T MODEL 530, TELEPHONE	C .	856			10/03/1990	
00600	NUMONICS DIGITAL TABLET	C 0152089	856	2829		06/21/1990	
01100	Ku RECEIVER (GI)	C MAC3120124972	856			09/18/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C 001368	856			07/18/1990	
6155	-PRESIDIO HIGH SCHOOL						
00100	AUDIO VIDEO UNIT	C 909	909	3330		06/21/1990	
00213	TOSKIBA MONITOR CF2033	C 37518654	909	3331		09/18/1990	
00312	TOSHIBA VCR M-6007	C 21632454	909	3333		06/21/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C 0200132	909	3338		96/21/1990	
00530	AT&T MODEL 530, TELEPHONE	C N/A	909			10/09/1990	
00600	NUMONICS DIGITAL TABLET	C 300274	909	3339		06/21/1990	
01100	Ku RECEIVER (GI)	C AC311004583	909	3336		06/21/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C 002198	909			10/04/1990	
4020	-R.H. WATKINS HIGH SCHOOL						
00100	AUDIO VIDEO UNIT	C 1003	1003	3724		06/12/1990	
00211	TOSHIBA MONITOR CF2028A	C 18415574	1003	3725		06/12/1990	
00317	TOSHIBA VCR M-5483	C 18634866	1003	3727		06/12/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C 0207324	1003	3732		06/12/1990	
00530	AT&T MODEL 530, TELEPHONE	C N/A	1003			10/12/1990	
00600	NUMONICS DIGITAL TABLET	C 0780089	1003	3733		06/12/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C 892009554	1003	3730		06/12/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C 001645	1003			09/07/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C 001654	1003			09/07/1990	
	-R.O.W.V.A. HIGH SCHOOL						
00100	AUDIO VIDEO UNIT	C 974	974	3529		08/08/1989	

RESOURCE CODE	RESOURCE NAME	WHO OWNS	SERIAL NUMBER	CART NUMBER	STAR NUMBER	ASSET NUMBER	INSTALLATION DATE	LAST MAINT
00211	TOSHIBA MONITOR CF2028A	C	18415080	974	3530		08/08/1989	
00314	TOSHIBA VCR M-1287	C	10634153	974	3532		08/08/1989	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205099	974	3537		08/08/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	974			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	0147889	974	3625		08/08/1989	
01100	Ku RECEIVER (GI)	C	AC3110041192	974	3535		08/08/1989	
01500	SUBSCRIBER INTERFACE DEVICE	C	001659	974			07/08/1990	
5904	-RAGLAND HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	752	752	1920		05/31/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813559	752	1921		05/31/1990	
00332	TEKNIKA VCR 882	C	D48810175	752	1923		05/31/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221645	752	1928		05/31/1990	
00600	NUMONICS DIGITAL TABLET	C	300246	752	1929		05/31/1990	
01100	Ku RECEIVER (GI)	C	8812370-881	752	1927		05/31/1990	
4127	-RANGER HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1066	1066			06/18/1990	
00214	TOSHIBA MONITOR CF2041	C	60490725	1066			06/18/1990	
00313	TOSHIBA VCR M-1283	C	20721983	1066			06/18/1990	
00422	PRINTER SEIKOSHA SP-2000	C	232949	1066			09/14/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1066			10/03/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	89121912	1066			06/18/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001924	1066			10/18/1990	
6150	-RAYMOND HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	911	911	3350		06/11/1990	
00231	TEKNICA MONITOR TJ2077	C	C45812030	911	3351		06/11/1990	
00312	TOSHIBA VCR M-6007	C	21632123	911	3353		06/11/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210073	911	3358		06/11/1990	
00510	UNIDEN XE-250 CORDLESS PHONE	C	..	911			08/20/1990	
00530	AT&T MODEL 530, TELEPHONE	C	.	911			10/16/1990	
00600	NUMONICS DIGITAL TABLET	C	0150289	911	3359		06/11/1990	
01100	Ku RECEIVER (GI)	C	MAC3120132688	911			06/11/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001914	911			08/20/1990	
5983	-RED BAY HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	762	762	2010		01/06/1990	
00231	TEKNIKA MONITOR TJ2077	C	C50813571	762	2011		01/06/1990	
00332	TEKNIKA VCR 682	C	D48810696	762	2013		01/06/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221700	762	2018		01/06/1990	
00600	NUMONICS DIGITAL TABLET	C	0151889	762	2010		01/06/1990	
01100	Ku RECEIVER (GI)	T	MAC3120078396	762	2016		01/06/1990	
6059	-RICHLANDS HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	801	801	2510		05/22/1990	
00231	TEKNIKA MONITOR TJ2077	C	C49812492	801	2411		05/22/1990	

RESOURCE CODE	RESOURCE NAME	WHO OWNS	SERIAL NUMBER	CART NUMBER	STAR NUMBER	ASSET NUMBER	INSTALLATION DATE	LAST MAINT
00334	TEKNIKA VCR 881	C	D03913223	801	2413		05/22/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204689	801	2418		05/22/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	801			09/25/1990	
00600	NUMONICS DIGITAL TABLET	C	300235	801	2419		05/22/1990	
01100	Ku RECEIVER (GI)	C	MAC3120109007	801	2206		05/22/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001105	801			08/03/1990	
4068	-RIDGEWAY ATTENDANCE CENTER							
00100	AUDIO VIDEO UNIT	C	987	987	3635		08/15/1989	
00211	TOSHIBA MONITOR CF2028A	C	18415580	987	3636		08/15/1989	
00313	TOSHIBA VCR M-1203	C	39623044	987	3638		08/15/1989	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205990	987	3643		08/15/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	987			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	0779389	987	3668		08/15/1989	
01100	Ku RECEIVER (GI)	C	AC311003020	987	3641		08/15/1989	
01500	SUBSCRIBER INTERFACE DEVICE	C	001551	987			08/07/1990	
6054	-RIO VISTA ISD							
00100	AUDIO VIDEO UNIT	C	858	858	2980		06/21/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812691	858	2981		06/21/1990	
00334	TEKNIKA VCR 881	C	D03913302	858	2983		06/21/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205837	858	2988		06/21/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	858	2985		10/18/1990	
00600	NUMONICS DIGITAL TABLET	C	300266	858	2989		06/21/1990	
01100	Ku RECEIVER (GI)	C	MAC3120109795	858	2986		06/21/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001381	858			07/25/1990	
5895	-RIPLEY CENTRAL HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	689	689	1720		06/15/1990	
00211	TOSHIBA MONITOR CF2028A	C	58425975	689	1721		06/15/1990	
00313	TOSHIBA VCR M-6000	C	69323588	689	1723		06/12/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211156	689	1728		06/15/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	689			10/17/1990	
00600	NUMONICS DIGITAL TABLET	C	300248	689	1729		06/15/1990	
01100	Ku RECEIVER (GI)	C	MAC3110018455	689	1727		11/20/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001838	689			08/09/1990	
5228	-RISING STAR HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1056	1056	4061		06/20/1990	
00214	TOSHIBA MONITOR CF2041	C	60489518	1056	4062		06/20/1990	
00313	TOSHIBA VCR M-1203	C	20721750-1091	1056			06/20/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0221572	1056	4069		06/20/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1056			11/26/1990	
00600	NUMONICS DIGITAL TABLET	C	0782989	1056	4070		06/20/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	89181080	1056	4067		06/20/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002213	1056			11/26/1990	

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3061 -RIVER RIDGE HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	980	980	3556		09/05/1989	
00211	TOSHIBA MONITOR CF2028A	C	18415591	980	3557		09/05/1989	
00313	TOSHIBA VCR M-1283	C	39621354	980	3559		09/05/1989	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210753	980	3564		09/05/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	980			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	05114489	980	3631		09/05/1989	
01100	Ku RECEIVER (GI)	C	AC4040459008	980	3562		09/05/1989	
01500	SUBSCRIBER INTERFACE DEVICE	C	001679	980			08/14/1990	
5940 -ROBERT C. HATCH HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	666	666			03/29/1990	
00216	TOSHIBA MONITOR CF2048	C	58413061	666	1110		12/13/1989	
00301	TEKNIKA VCR	C	58332794	666	1112		03/29/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211539	666	1117		03/29/1989	
01100	Ku RECEIVER (GI)	T	MAC3110019322	666	1115		03/29/1989	
5920 -ROCKY BOY TRIBAL HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	706	706	1470		06/15/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813676	706	1471		06/15/1990	
00332	TEKNIKA VCR 882	C	D48810751	706	1473		06/15/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	02110197	706	1478		06/15/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	706			10/17/1990	
00600	NUMONICS DIGITAL TABLET	C	300174	706	1479		06/15/1990	
01100	Ku RECEIVER (GI)	C	AC3110031011	706			06/15/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001907	706			07/26/1990	
6193 -ROSEVILLE HS UNIT 200								
00100	AUDIO VIDEO UNIT	C	817	817	2570		03/14/1989	
00231	TEKNICA MONITOR TJ2077	C	C49812510	817	2571		03/14/1989	
00334	TEKNIKA VCR 881	C	D03913441	817	2573		03/14/1989	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204900	817	2578		03/14/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	817			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300313	817	2579		03/14/1989	
01100	Ku RECEIVER (GI)	C	AC3110029571	817	2576		03/14/1989	
01500	SUBSCRIBER INTERFACE DEVICE	C	001605	817			08/02/1990	
14008 -RUSK ISD								
00100	AUDIO VIDEO UNIT	C	871	871	3100		06/21/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813533	871	3101		06/21/1990	
00312	TOSHIBA VCR M-6007	C	21631872	871	3103		06/21/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204731	871	3108		06/21/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	871			10/18/1990	
01100	Ku RECEIVER (GI)	C	AC4020134578	871			08/08/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001796	871			08/09/1990	
6120 -S.D. LEE HIGH SCHOOL								

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00100	AUDIO VIDEO UNIT	C	766	766	2050		06/11/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813585	766	2051		06/11/1990	
00313	TOSHIVA VCR M-1203	C	20721619	766	3455		06/11/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221310	766	2050		06/11/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	766			10/12/1990	
00600	NUMONICS DIGITAL TABLET	C	0151989	766	2050		06/11/1990	
01100	Ku RECEIVER (GI)	C	AC4040007016	766			08/28/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001950	766			08/28/1990	
14009	-SABINAL HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1041	1041	3921		06/21/1990	
00214	TOSHIBA MONITOR CF2041	C	60490722	1041	3922		06/21/1990	
00314	TOSHIBA VCR M-1207	C	18633663	1041	3924		10/31/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211754	1041	3929		06/21/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1041			10/12/1990	
00600	NUMONICS DIGITAL TABLET	C	0786009	1041	3930		06/21/1990	
01202	C band RECEIVER, TRACKER & PLUS	C	892204311	1041	3927		06/21/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001066	1041			07/19/1990	
6543	-SALTILLO HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	873	873	3120		06/21/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812637	873	3121		06/21/1990	
00312	TOSHIBA VCR M-6007	C	21631409	873	3123		06/21/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210139	873	3120		06/21/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	873			10/03/1990	
00600	NUMONICS DIGITAL TABLET	C	300269	873	3129		06/21/1990	
01100	Ku RECEIVER (GI)	C	MAC3110046038	873	3126		06/21/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001961	873			09/18/1990	
6175	-SANDOVAL JR/SR HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	829	829	2690		06/28/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812644	829			06/28/1990	
00334	TEKNIKA VCR 881	C	D03913370	829			06/28/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0203627	829	2698		06/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	829			10/02/1990	
00600	NUMONICS DIGITAL TABLET	C	300148	829	2699		06/28/1990	
01100	Ku RECEIVER (GI)	C	MAC3120123543	829	2696		06/28/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001593	829			08/08/1990	
6151	-SANTA FE INDIAN SCHOOL							
00100	AUDIO VIDEO UNIT	C	902	902	3310		06/15/1990	
00214	TOSHIBA MONITOR CF2041	C	60489508	902			06/15/1990	
00312	TOSHIBA VCR M-6007	C	21632648	902	3303		06/15/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0210091	902	3318		06/15/1990	
	-SELMA HIGH SCHOOL							
100	AUDIO VIDEO UNIT	C	746	746	1860		01/06/1990	

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00231	TEKNIKA MONITOR TJ2077	C	C49813068	746	1861		01/06/1990	
00332	TEKNIKA VCR 682	C	D48810407	746	1863		01/06/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221475	746	1868		01/06/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	746			09/28/1990	
00600	NUMONICS DIGITAL TABLET	C	300297	746	1869		01/06/1990	
01100	Ku RECEIVER (GI)	T	AC3120080512	746	NONE		02/16/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002129	746			08/24/1990	
5891	-SEQUOYAH HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	670	670	1145		06/15/1990	
00211	TOSHIBA MONITOR CF2028A	C	58425938	670	1146		06/15/1990	
00311	TOSHIBA VCR M-6003	C	58532809	670	1148		06/15/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211153	670	1153		06/15/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	670			11/13/1990	
01100	Ku RECEIVER (GI)	C	MAC3120093246	670	1151		06/15/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001908	670			08/09/1990	
6107	-SHAWNEE HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	835	835	2750		06/28/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812568	835	2751		06/28/1990	
00313	TOSHIBA VCR M-1283	C	39620901	835	2587		06/28/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205153	835	2758		06/28/1990	
00600	NUMONICS DIGITAL TABLET	C	300221	835	2759		06/28/1990	
01100	Ku RECEIVER (GI)	C	MAC3120102966	835			06/28/1990	
5881	-SHERMAN INDIAN HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	711	711	1520		06/25/1990	
00212	TOSHIBA MONITOR CF2037	C	58425932	711	1521		06/25/1990	
00332	TEKNIKA VCR 882	C	D48810438	711	1523		06/25/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221350	711	1528		06/25/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	711			10/15/1990	
00600	NUMONICS DIGITAL TABLET	C	300172	711	1529		06/25/1990	
01100	Ku RECEIVER (GI)	C	MAC3120128838	711	1526		06/25/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001125	711			08/06/1990	
6130	-SHILOH HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	846	846	2870		06/28/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812543	846	2871		06/28/1990	
00334	TEKNIKA VCR 881	C	D03913227	846	2873		06/28/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204758	846	2878		06/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	846	2875		10/02/1990	
00600	NUMONICS DIGITAL TABLET	C	0149189	846	2879		06/28/1990	
01100	Ku RECEIVER (GI)	C	MAC3110051507	846	2876		06/28/1990	
5898	-SKYLINE HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	675	675	1190		01/06/1990	
[illegible]11	TOSHIBA MONITOR CF2028A	C	58425981	675	1191		01/06/1990	

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00312	TOSHIBA VCR M-6007	C	25531950	675	1193		01/06/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221772	675	1198		01/06/1990	
00600	NUMONICS DIGITAL TABLET	C	300264	675	5994		01/06/1990	
01100	Ku RECEIVER (GI)	T	MAC3120123194	675	1196		01/06/1990	
6129	-SOUTH CENTRAL HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	813	813	2530		03/18/1989	
00231	TEKNICA MONITOR TJ2077	C	C49813089	813	2531		03/18/1989	
00334	TEKNIKA VCR 881	C	D03913298	813	2533		03/18/1989	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204899	813			03/18/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	653			10/02/1990	
00600	NUMONICS DIGITAL TABLET	C	300239	813	2539		03/18/1989	
01100	Ku RECEIVER (GI)	C	MAC3110013505	813	2536		03/18/1989	
01500	SUBSCRIBER INTERFACE DEVICE	C	001440	813			08/09/1990	
6416	-SOUTH JONES HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1011	1011	3804		06/11/1990	
00211	TOSHIBA MONITOR CF2028A	C	18415650	1011	3805		06/11/1990	
00317	TOSHIBA VCR M-5483	C	18634077	1011	3807		06/11/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0213565	1011	3812		06/11/1990	
00530	AT&T MODEL 530, TELEPHONE	C	.	1011	3809		10/12/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	892009436	1011	3810		06/11/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001413	1011			08/31/1990	
5978	-SOUTH LAMAR HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	680	680	1235		05/31/1990	
00216	TOSHIBA MONITOR CF2048	C	58413071	680	1236		05/31/1990	
00312	TOSHIBA VCR M-6007	C	25532129	680	1238		05/31/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221301	680	1243		05/31/1990	
00600	NUMONICS DIGITAL TABLET	C	300321	680	5998		05/31/1990	
01100	Ku RECEIVER (GI)	C	MAC31275393	680	5967		05/31/1990	
6069	-SOUTH ROBESON HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	797	797	2370		05/22/1990	
00231	TEKNIKA MONITOR TJ2077	C	C49813030	797	2371		05/22/1990	
00332	TEKNIKA VCR 882	C	D48810546	797	2373		05/22/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0207626	797	2378		05/22/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	797			09/28/1990	
00600	NUMONICS DIGITAL TABLET	C	300125	797	2379		05/22/1990	
01100	Ku RECEIVER (GI)	C	MAC3110022674	797	2376		05/22/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001161	797			07/18/1990	
6333	-SOUTHEAST HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1012	1012			09/07/1989	
00211	TOSHIBA MONITOR CF2028A	C	18415569	1012			09/07/1989	
00313	TOSHIVA VCR M-1283	C	39620949	1012			09/07/1989	
00421	PRINTER SEIKOSHA SP-1600AI	C	0213563	1012			09/07/1989	

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00510	UNIDEN XE-250 CORDLESS PHONE	C	.	1012			08/26/1990	
00530	AT&T MODEL 530, TELEPHONE	C	.	1012			10/16/1990	
00600	NUMONICS DIGITAL TABLET	C	0778889	1012			09/07/1989	
01202	C band RECEIVER, TRACKER 8 PLUS	C	892009500	1012			09/07/1989	
01500	SUBSCRIBER INTERFACE DEVICE	C	002141	1012			08/26/1990	
6108	-SOUTHEASTERN HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	807	807	2470		04/11/1989	
00231	TEKNICA MONITOR TJ2077	C	C49813034	807	2471		04/11/1989	
00334	TEKNIKA VCR 881	C	D03913428	807	2473		04/11/1989	
00422	PRINTER SEIKOSHA SP-2000	C	0232949	807	2478		09/14/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	807			10/02/1990	
00600	NUMONICS DIGITAL TABLET	C	300314	807	2479		04/11/1989	
01100	Ku RECEIVER (GI)	C	AC3120120652	807	1456		08/06/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001556	807			08/06/1990	
5927	-SOUTHSIDE HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	665	665	1100		05/31/1990	
00216	TOSHIBA MONITOR CF2048	C	58413032	665	1101		05/31/1990	
00311	TOSHIBA VCR M-6003	C	25638280	665	1103		05/31/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221595	665	1108		05/31/1990	
00600	NUMONICS DIGITAL TABLET	C	300322	665	5988		05/31/1990	
01100	Ku RECEIVER (GI)	C	AC4040462507	665			05/31/1990	
00213	TOSKIBA MONITOR CF2033	C	31507384	656	1299		06/22/1990	
00311	TOSHIBA VCR M-6003	C	25638327	656	1302		06/22/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0203997	656			06/22/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	656			10/18/1990	
00600	NUMONICS DIGITAL TABLET	C	300251	656	5976		06/22/1990	
01100	Ku RECEIVER (GI)	C	MAC3110039010	656	1305		06/22/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001895	656			08/02/1990	
6058	-SOUTHWEST JR/SR HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	800	800	2400		05/23/1990	
00231	TEKNIKA MONITOR TJ2077	C	C49812586	800	2401		05/23/1990	
00334	TEKNIKA VCR 881	C	D0391320	800	2403		05/23/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0224869	800	2408		05/23/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	801			09/28/1990	
00600	NUMONICS DIGITAL TABLET	C	300238	800	2409		05/23/1990	
01100	Ku RECEIVER (GI)	C	AC3100003233	800	2146		05/23/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001177	801			08/01/1990	
6131	-ST. ANNE COMM. HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	840	840	2800		03/21/1989	
00231	TEKNICA MONITOR TJ2077	C	C49812655	840	2801		03/21/1989	
00334	TEKNIKA VCR 881	C	D03913143	840			03/21/1989	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204914	840	2808		03/21/1989	
00530	AT&T MODEL 530, TELEPHONE	C	NONE	840			09/21/1990	
00600	NUMONICS DIGITAL TABLET	C	300204	840	2809		03/21/1989	

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01100	Ku RECEIVER (GI)	C	AC4040460032	040	2806		03/21/1989	
01500	SUBSCRIBER INTERFACE DEVICE	C	001573	840			08/10/1990	
5902 -ST. CLAIR COUNTY HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	671	671	1154		01/06/1990	
00211	TOSHIBA MONITOR CF2028A	C	58425271	671	1155		01/06/1990	
00310	TOSHIBA VCR M-6000	C	69323100	671	2592		01/06/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0212455	6712	1162		01/06/1990	
00600	NUMONICS DIGITAL TABLET	C	11034	671	1308		01/06/1990	
01100	Ku RECEIVER (GI)	T	MAC4020135502	671	1160		01/06/1990	
6132 -ST. ELMO JR/SR HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	806	806	2460		03/17/1989	
00231	TEKNICA MONITOR TJ2077	C	C49812596	806	2461		03/17/1989	
00334	TEKNIKA VCR 881	C	D03913299	806	2463		03/17/1989	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204690	806	2468		03/17/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	806			10/02/1990	
00600	NUMONICS DIGITAL TABLET	C	300234	806	2469		03/17/1989	
01100	Ku RECEIVER (GI)	C	AC40462384	806	1124		08/09/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001706	806			08/09/1990	
6121 -STANDING PINE DAY SCHOOL								
00100	AUDIO VIDEO UNIT	C	769	769	2080		06/12/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813743	769	2081		06/12/1990	
00332	TEKNIKA VCR 882	C	D48810711	769	2083		06/12/1990	
00421	PRINTER SEIKOSHA SP-1600AI	T	0211160	769	2088		06/12/1990	
00510	UNIDEN XE-250 CORDLESS PHONE	C	.	769			08/26/1990	
00530	AT&T MODEL 530, TELEPHONE	C	.	769	2085		11/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300304	769	2089		03/12/1990	
01100	Ku RECEIVER (GI)	C	AC3120104024	769			06/12/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002130	769			08/27/1990	
6122 -STARKVILLE HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	767	767			02/11/1989	
00231	TEKNICA MONITOR TJ2077	C	C50813792	767			02/11/1989	
00332	TEKNIKA VCR 882	C	D48810354	767			02/11/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211159	767			02/11/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	767			10/12/1990	
01100	Ku RECEIVER (GI)	C	AC3120060510	767			08/29/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001879 (9,,,)	767			09/10/1990	
5958 -STOCKDALE HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	725	725	1660		06/22/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813714	725	1661		06/22/1990	
00332	TEKNIKA VCR 882	C	D48810872	725	1663		06/22/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221835	725	1665		06/22/1990	
[illegible]530	AT&T MODEL 530, TELEPHONE	C	N/A	725			10/18/1990	

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00600	NUMONICS DIGITAL TABLET	C	300131	725	1669		06/22/1990	
01100	Ku RECEIVER (GI)	C	MAC3120111516	725			08/02/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001978	725			08/03/1990	
6028	-SULLIGENT HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	681	681	1244		01/06/1990	
00216	TOSHIBA MONITOR CF2048	C	58413025	681	1245		01/06/1990	
00312	TOSHIBA VCR M-6007	C	25531961	681	1247		01/06/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0212474	681	1252		01/06/1990	
00600	NUMONICS DIGITAL TABLET	C	11030	681	1263		01/06/1990	
01100	Ku RECEIVER (GI)	T	MAC3120092370	681	1250		01/06/1990	
4010	-SULPHUR BLUFF HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1048	1048	3981		06/22/1990	
00214	TOSHIBA MONITOR CF2041	C	60481516	1048	3982		06/22/1990	
00317	TOSHIBA VCR M-5403	C	08630318	1048	3984		06/22/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	02115 0	1048	3989		06/22/1990	
00510	UNIDEN XE-250 CORDLESS PHONE	C	.	1048			07/31/1990	
00600	NUMONICS DIGITAL TABLET	C	0704989	1048	3990		06/22/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	89181215	1048	3987		06/22/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001876	1048			07/31/1990	
5959	-SUMTER COUNTY HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	743	743	1830		01/06/1990	
00231	TEKNIKA MONITOR TJ2077	C	C50813690	743	1831		01/06/1990	
00332	TEKNIKA VCR 602	C	D40810005	743	1833		01/06/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221353	743	1830		01/06/1990	
00600	NUMONICS DIGITAL TABLET	C	300294	743	1839		01/06/1990	
01100	Ku RECEIVER (GI)	T	MAC3120128313	743	1834		01/06/1990	
5961	-SUNSHINE HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	668	668	1127		12/13/1988	
00211	TOSHIBA MONITOR CF2028A	C	58425976	668	1128		12/13/1988	
00312	TOSHIBA VCR M-6007	C	25531825	668	1130		12/13/1988	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221728	668	1135		12/13/1988	
00600	NUMONICS DIGITAL TABLET	C	300290	668	5992		12/13/1988	
01100	Ku RECEIVER (GI)	C	AC4040482915	1133	1134		12/13/1988	
5960	-SWEET WATER HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	738	738	1780		01/06/1990	
00231	TEKNIKA MONITOR TJ2077	C	C50813647	738	1781		01/06/1990	
00332	TEKNIKA VCR 802	C	D40810168	738	1783		01/06/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211004	1788	178		01/06/1990	
00600	NUMONICS DIGITAL TABLET	C	300279	738	1789		01/06/1990	
01100	Ku RECEIVER (GI)	T	AC3120112721	738	1786		01/06/1990	

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6153	-T.L. WESTON HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	910	910			05/16/1989	
00231	TEKNICA MONITOR TJ2077	C	C45812059	910			05/16/1989	
00312	TOSHIBA VCR M-6007	C	21632174	910			05/16/1989	
00421	PRINTER SEIKOSHA SP-1600AI	C	0206061	910			05/16/1989	
00530	AT&T MODEL 530, TELEPHONE	C	.	910			10/16/1990	
00600	NUMONICS DIGITAL TABLET	C	0150389	910			05/16/1989	
01100	Ku RECEIVER (GI)	C	AC3110030910	910			05/16/1989	
01500	SUBSCRIBER INTERFACE DEVICE	C	001646	910			08/31/1990	
5982	-THE BEVILL CENTER							
00100	AUDIO VIDEO UNIT	C	759	759	1980		12/28/1989	
00231	TEKNIKA MONITOR TJ2077	C	C50813575	759	1981		03/10/1988	
00333	TEKNIKA VCR 782	C	048810788	759	1983		03/10/1988	
00420	PRINTER SEIKOSHA SP-1200AI	T	0221837	759	1988		03/10/1988	
00600	NUMONICS DIGITAL TABLET	C	300306	759	1989		12/28/1989	
01100	Ku RECEIVER (GI)	T	MAC3110016982	759	1986		03/10/1988	
5996	-THOMASVILLE HIGH SCHOOL							
20100	AUDIO VIDEO UNIT	C	777	777	2180		05/23/1990	
00231	TEKNIKA MONITOR TJ2077	C	C49813103	777	2181		05/23/1990	
00316	TOSHIBA VCR M-7603	C	25725525	777	2183		05/23/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204953	777	2188		05/23/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	777			10/09/1990	
00600	NUMONICS DIGITAL TABLET	C	0150589	777	2189		05/23/1990	
01100	Ku RECEIVER (GI)	C	AC4020187138	777	2186		09/19/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002151	777			11/06/1990	
5997	-THOMPSONVILLE HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	826	826	2660		04/24/1989	
00231	TEKNICA MONITOR TJ2077	C	C49812521	826	2661		04/24/1989	
00334	TEKNIKA VCR 801	C	D03913153	826	2663		04/24/1989	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204974	826	2668		04/24/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	826			10/02/1990	
00600	NUMONICS DIGITAL TABLET	C	300144	826	2667		04/24/1989	
01100	Ku RECEIVER (GI)	C	MAC3100006080	826	2666		09/18/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001682	826			08/03/1990	
6885	-THOMSON HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	979	979	3547		08/08/1989	
00211	TOSHIBA MONITOR CF2028A	C	18415518	979	3548		08/08/1989	
00314	TOSHIBA VCR M-1287	C	18634545	979	3550		08/08/1989	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210726	979	3555		08/08/1989	
00600	NUMONICS DIGITAL TABLET	C	0486489	979	3630		08/08/1989	
01100	Ku RECEIVER (GI)	C	AC3100012042	979	3553		08/08/1989	
	-THREADGILL SCHOOL							

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00100	AUDIO VIDEO UNIT	C	914	914	3380		06/12/1990	
00231	TEKNICA MONITOR TJ2077	C	C45812032	914	3381		06/12/1990	
00312	TOSHIBA VCR M-6007	C	21632440	312	3383		06/12/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0207536	914	3388		06/12/1990	
00530	AT&T MODEL 530, TELEPHONE	C	.	914	3385		10/16/1990	
00600	NUMONICS DIGITAL TABLET	C	0148389	914	3389		06/12/1990	
01100	Ku RECEIVER (GI)	C	AC3120114240	914	3386		06/12/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001975	914			09/04/1990	
3015	-TIMPSON HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	868	868	3070		06/22/1990	
00231	TEKNICA MONITOR TJ2077	C	C50814046	868	3071		06/20/1990	
00334	TEKNIKA VCR 881	C	D03913510	868	3073		06/20/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210103	868	3078		06/22/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	868			10/18/1990	
00600	NUMONICS DIGITAL TABLET	C	300150	868	3079		06/22/1990	
01100	Ku RECEIVER (GI)	C	MAC120100413	868	3076		06/22/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001619	868			08/01/1990	
5963	-TO'HAJIILEE-HE HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	734	734	1740		06/15/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813668	734	1741		06/15/1990	
00332	TEKNIKA VCR 882	C	D48810117	734	1743		06/15/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211655	734	1748		06/15/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	734			10/16/1990	
00600	NUMONICS DIGITAL TABLET	C	300192	734	1749		06/15/1990	
01100	Ku RECEIVER (GI)	C	MAC3120120641	734	1966		07/31/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001068	734			07/31/1990	
3014	-TORNILLO HIGH SCHOOL							
00211	TOSHIBA MONITOR CF2028A	C	18415523	999			06/22/1990	
00313	TOSHIVA VCR M-1283	C	39621576	999			06/22/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0211091	999			06/22/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	999			10/03/1990	
00600	NUMONICS DIGITAL TABLET	C	0785789	999			06/22/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	89181227	999			06/22/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001752	999			08/10/1990	
16110	-TRI-COUNTY ESC #10							
00100	AUDIO VIDEO UNIT	C	844	844	2850		06/28/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812670	844	2851		06/28/1990	
00334	TEKNIKA VCR 881	C	D03913582	844	2853		06/28/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204692	844	2858		06/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	844			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300157	844	2859		06/28/1990	
01100	Ku RECEIVER (GI)	C	MAC3120100031	844	2856		06/28/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001707	844			08/10/1990	

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6031	-TRONA HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	712	712	1530		06/25/1990	
00100	AUDIO VIDEO UNIT	C	1144	1144			09/20/1990	
00213	TOSKIBA MONITOR CF2033	C	37510632	1144			09/20/1990	
00216	TOSHIBA MONITOR CF2048	C	58413011	712	1533		06/25/1990	
00313	TOSHIVA VCR M-1283	C	20721985	712			06/25/1990	
00334	TEKNIKA VCR 881	C	H43946585	1144			09/20/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0212147	712	1538		06/25/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	025791	1144			09/20/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	712			09/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1144			09/28/1990	
00600	NUMONICS DIGITAL TABLET	C	300210	712	1539		06/25/1990	
01100	Ku RECEIVER (GI)	C	MAC3120088408	712	2796		09/17/1990	
01100	Ku RECEIVER (GI)	C	AC3110033520	1144			09/20/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001143	712			08/09/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001909	1144			09/20/1990	
5919	-TUBA CITY HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	702	702	1430		06/01/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813666	702	1431		06/01/1990	
00332	TEKNIKA VCR 882	C	D48810526	702	1433		06/01/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211379	702	1438		06/01/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	702			10/15/1990	
00600	NUMONICS DIGITAL TABLET	C	0211379	702	1439		06/01/1990	
01100	Ku RECEIVER (GI)	C	MAC3120120886	702			06/01/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001098	702			07/30/1990	
6138	-TUPELO HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	775	775	2140		06/12/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813745	775	2141		06/12/1990	
00332	TEKNIKA VCR 882	C	D48810717	775	2143		06/12/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205123	775	2148		06/12/1990	
00530	ATAT MODEL 530, TELEPHONE	C	.	775	2145		10/16/1990	
00600	NUMONICS DIGITAL TABLET	C	0149489	775	2149		06/12/1990	
01100	Ku RECEIVER (GI)	C	MAC3120073064	775	2756		06/12/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002147	6138			08/30/1990	
5889	-TURTLE MOUNTAIN HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	694	694	1350		06/12/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813680	694	1351		02/01/1989	
00332	TEKNIKA VCR 882	C	D48810767	694	1353		02/01/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0210862	694	1358		02/01/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	694			10/18/1990	
00600	NUMONICS DIGITAL TABLET	C	300186	694	1359		06/12/1990	
01100	Ku RECEIVER (GI)	C	AC3120102101	694			10/24/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001246	694			08/02/1990	
	-TUSCALOOSA CO. HIGH SCHOOL							

RESOURCE CODE	RESOURCE NAME	WHO OWNS	SERIAL NUMBER	CART NUMBER	STAR NUMBER	ASSET NUMBER	INSTALLATION DATE	LAST MAINT
00100	AUDIO VIDEO UNIT	C	654	654	1010		05/31/1990	
00211	TOSHIBA MONITOR CF2028A	C	58425913	654	1011		05/31/1990	
00311	TOSHIBA VCR M-6003	C	25638283	654	1013		05/31/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211155	654	1018		05/31/1990	
00600	NUMONICS DIGITAL TABLET	C	300252	654	5978		05/31/1990	
01100	Ku RECEIVER (GI)	C	881121-866	654	1017		05/31/1990	
5877	-UKIAH HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	707	707	1480		06/15/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813680	707	1481		06/15/1990	
00332	TEKNIKA VCR 882	C	D48810377	707	1483		06/15/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221259	707			06/15/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	707			10/10/1990	
00600	NUMONICS DIGITAL TABLET	C	300182	707	1489		06/15/1990	
01100	Ku RECEIVER (GI)	C	AC4050510750	707			07/16/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001091	707			07/16/1990	
5041	-UNION HILL HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1044	1044	3941		06/22/1990	
00214	TOSHIBA MONITOR CF2041	C	60490723	1044	3942		06/22/1990	
00313	TOSHIVA VCR M-1283	C	20721771	1044	3944		06/22/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0212137	1044	3949		06/22/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1044			10/03/1990	
00600	NUMONICS DIGITAL TABLET	C	0786189	1044	3950		06/22/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	892203399	1044	3947		06/22/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001848	1044			08/01/1990	
6039	-UNITY HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	808	808	2480		03/16/1989	
00231	TEKNICA MONITOR TJ2077	C	C49812485	808	2481		03/16/1989	
00312	TOSHIBA VCR M-6007	C	21631511	808	5955		03/16/1989	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205144	808	2488		03/16/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	808			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300233	808	2489		03/16/1989	
01100	Ku RECEIVER (GI)	C	AC4050516305	808	2486		09/18/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001557	808			08/06/1990	
3005	-UTICA HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1017	1017	3864		06/12/1990	
00211	TOSHIBA MONITOR CF2028A	C	18415621	1017	3865		06/12/1990	
00317	TOSHIBA VCR M-5483	C	18634887	1017	3867		06/12/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205810	1017	3872		06/12/1990	
00510	UNIDEN XE-250 CORDLESS PHONE	C	..	1017			08/20/1990	
00530	AT&T MODEL 530, TELEPHONE	C		1017	3869		01/17/1991	
00600	NUMONICS DIGITAL TABLET	C	0783889	1017	2827		06/12/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	892009765	1017	3870		06/12/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002142	1017			08/20/1990	

RESOURCE CODE	RESOURCE NAME	WHO OWNS	SERIAL NUMBER	CART NUMBER	STAR NUMBER	ASSET NUMBER	INSTALLATION DATE	LAST MAINT
6098 -UTOPIA SCHOOL								
00100	AUDIO VIDEO UNIT	C	888	888	3270		06/22/1990	
00211	TOSHIBA MONITOR CF2028A	C	21529076	888	3271		06/22/1990	
00312	TOSHIBA VCR M-6007	C	21632018	888	3273		06/22/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210104	888	3278		06/22/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	888			10/12/1990	
00600	NUMONICS DIGITAL TABLET	C	300271	888	3279		06/22/1990	
01100	Ku RECEIVER (GI)	C	AC3110043892	888	3276		06/22/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001080	888			07/19/1990	
5910 -VALLEY HEAD HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	673	673	1172		01/06/1990	
00216	TOSHIBA MONITOR CF2048	C	58413017	673	1173		01/06/1990	
00332	TEKNIKA VCR 682	C	D48810159	673	1175		01/06/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211656	673	1180		01/06/1990	
00600	NUMONICS DIGITAL TABLET	C	11031	673	1266		01/06/1990	
01100	Ku RECEIVER (GI)	T	AC4040469944	673	1178		01/06/1990	
3076 -VALLEY VIEW HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	857	857	2970		06/22/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812861	857	2971		06/22/1990	
00334	TEKNIKA VCR 881	C	D03913220	857	2973		06/22/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	020513	857	2978		06/22/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	857			10/18/1990	
00600	NUMONICS DIGITAL TABLET	C	300253	857	2979		06/22/1990	
01100	Ku RECEIVER (GI)	C	AC311003518	857			06/22/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001420	857			07/18/1990	
3024 -VALMEYER HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	984	984	3583		06/28/1990	
00211	TOSHIBA MONITOR CF2028A	C	18415775	984	3584		06/28/1990	
00314	TOSHIBA VCR M-1297	C	21533711	984	3586		06/28/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0207188	984	3591		06/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	984			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	0779989	984	3666		06/28/1990	
01100	Ku RECEIVER (GI)	C	AC3110018196	984	3589		08/02/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001595	984			08/02/1990	
6084 -VEGA HIGH SCHOOL								
00100	AUDIO VIDEO UNIT	C	860	860	3000		06/22/1990	
00231	TEKNICA MONITOR TJ2077	C	C45812001	860	3001		06/22/1990	
00318	TOSHIBA VCR M-120	C	22726861	860	3003		09/19/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221678	860	3008		06/22/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	860			10/09/1990	
00600	NUMONICS DIGITAL TABLET	C	0221678	860	3009		06/22/1990	
01100	Ku RECEIVER (GI)	C	AC3110031033	860	3006		06/22/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001479	860			12/18/1990	

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4022	-VICKSBURG HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	788	788	2290		06/12/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813778	788	2291		06/12/1990	
00316	TOSHIBA VCR M-7603	C	29634324	788	2293		06/12/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205094	788	2298		06/12/1990	
00510	UNIDEN XE-250 CORDLESS PHONE	C	.	788			08/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	.	788	2295		10/16/1990	
01100	Ku RECEIVER (GI)	C	AC3120095823	788			06/12/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002066	788			08/28/1990	
6111	-VIENNA HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	834	834	2740		06/28/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812850	834	2741		06/28/1990	
00334	TEKNIKA VCR 881	C	D03903202	834	2743		06/27/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204759	834	2748		06/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	834			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300123	834	2749		06/28/1990	
01100	Ku RECEIVER (GI)	C	AC3100000410	834	2746		09/21/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002092	834			11/06/1990	
6133	-WARREN CENTRAL HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1005	1005	3744		06/12/1990	
00211	TOSHIBA MONITOR CF2028A	C	18415624	1005	3745		06/12/1990	
00313	TOSHIVA VCR M-1283	C	39621224	1005	3747		06/12/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0211391	1005	3752		06/12/1990	
00510	UNIDEN XE-250 CORDLESS PHONE	C	.	1005			08/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	.	1005	3749		10/16/1990	
00600	NUMONICS DIGITAL TABLET	C	0780789	1005	3753		06/12/1990	
01202	C band RECEIVER, TRACKER II PLUS	C	90061105	1005			09/07/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002045	1005			08/28/1990	
4079	-WASHINGTON SCHOOL							
00100	AUDIO VIDEO UNIT	C	833	833	2730		06/28/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812640	833	2731		06/28/1990	
00334	TEKNIKA VCR 881	C	D03913037	833	2733		06/28/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204977	833	2738		06/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	833			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300147	833	2739		06/28/1990	
01100	Ku RECEIVER (GI)	C	AC3120061508	833			06/28/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001616	833			08/03/1990	
6154	-WEIR ATTENDANCE CENTER							
00100	AUDIO VIDEO UNIT	C	915	915	3390		06/12/1990	
00231	TEKNICA MONITOR TJ2077	C	C45812047	915	3391		06/12/1990	
00334	TEKNIKA VCR 881	C	D31613820	915	5964		06/12/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0200131	915	3398		06/12/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	915	3394		10/12/1990	
00600	NUMONICS DIGITAL TABLET	C	0140409	915	3399		06/12/1990	

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01100	Ku RECEIVER (GI)	C	AC4040467301	915	3396		06/12/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001963	915			09/04/1990	
3052	-WEST END HARRIS SCHOOL							
00100	AUDIO VIDEO UNIT	C	1013	1013	3824		06/11/1990	
00211	TOSHIBA MONITOR CF20?9A	C	18415573	1013	3825		06/11/1990	
00314	TOSHIBA VCR M-1287	C	19525550	1013	3827		09/18/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0205813	1013	3832		06/11/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1013			10/12/1990	
00600	NUMONICS DIGITAL TABLET	C	0780589	1013	3833		06/11/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	892009498	1013	3830		06/11/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002091	1013			08/26/1990	
3065	-WEST FRANKFORT HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	991	991	3677		06/28/1990	
00211	TOSHIBA MONITOR CF2028A	C	18415592	991	3678		06/28/1990	
00313	TOSHIBA VCR M-1283	C	39620628	991	3680		06/28/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205946	991	3685		06/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	991			10/02/1990	
00600	NUMONICS DIGITAL TABLET	C	0779589	991	3662		06/28/1990	
01100	Ku RECEIVER (GI)	C	AC3110019480	991	3683		06/28/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001685	991			08/03/1990	
6123	-WEST JONES HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	778	778	2190		06/12/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813731	778	2190		06/12/1990	
00316	TOSHIBA VCR M-7603	C	58527743	778	2193		06/12/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205149	778	2198		06/12/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	778			10/31/1990	
00600	NUMONICS DIGITAL TABLET	C	0151189	778	2199		06/12/1990	
01100	Ku RECEIVER (GI)	C	MAC3110020738	778	1295		06/12/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001748	778			11/30/1990	
6136	-WEST LAUDERDALE ATTEND. CENTR							
00100	AUDIO VIDEO UNIT	C	765	765	2040		06/12/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813765	765	2041		06/12/1990	
00332	TEKNIKA VCR 882	C	D48810182	765	2043		06/12/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221698	765	2048		06/12/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	765			10/12/1990	
00600	NUMONICS DIGITAL TABLET	C	0151689	765	2049		06/12/1990	
01100	Ku RECEIVER (GI)	C	MAC3120094001	765	2886		06/12/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001083	765			08/26/1990	
6041	-WEST PIKE COMM. HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	805	805	2450		06/28/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812500	805	2451		06/28/1990	
00334	TEKNIKA VCR 881	C	D03913391	805	2453		06/28/1990	

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00421	PRINTER SEIKOSHA SP-1600AI	C	0207627	805	2458		06/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	805			10/02/1990	
00600	NUMONICS DIGITAL TABLET	C	300203	805	2459		06/28/1990	
01100	Ku RECEIVER (GI)	C	AC3110053577	805	2456		06/28/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001631	805			08/06/1990	
5402	-WESTERN HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	978	978	3502		06/28/1990	
00211	TOSHIBA MONITOR CF2028A	C	18415658	978	3503		06/28/1990	
00318	TOSHIBA VCR M-120	C	22724566	978	3505		10/04/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0210727	978	3510		06/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	978			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	05113789	978	3629		06/28/1990	
01100	Ku RECEIVER (GI)	C	AC3110043791	978			06/28/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002169	978			09/17/1990	
5990	-WESTMER CUSD #203							
00100	AUDIO VIDEO UNIT	C	816	816	2560		06/28/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812992	816	2561		06/28/1990	
00334	TEKNIKA VCR 881	C	D03913174	816	2563		06/28/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204686	816	2568		06/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	816			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300292	816	2569		06/28/1990	
01100	Ku RECEIVER (GI)	C	MAC4040429567	816			01/03/1991	
01500	SUBSCRIBER INTERFACE DEVICE	C	001624	816			08/07/1990	
5886	-WHITE SHIELD SCHOOL							
00100	AUDIO VIDEO UNIT	C	695	695	1360		06/13/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813774	695	1361		06/13/1990	
00334	TEKNIKA VCR 881	C	D31913998	695	1362		08/01/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211100	695	1368		06/13/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	695			10/09/1990	
00600	NUMONICS DIGITAL TABLET	C	300185	695	1369		06/13/1990	
01100	Ku RECEIVER (GI)	C	AC4040428893	695	1366		06/13/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001341	695			08/01/1990	
5962	-WILCOX CENTRAL HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	741	741	1810		06/01/1990	
00231	TEKNICA MONITOR TJ2077	C	C50813663	741	1811		06/01/1990	
00332	TEKNIKA VCR 882	C	D48810206	741	1813		06/01/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0221352	741	1818		06/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300276	741	1819		06/01/1990	
6124	-WILKINSON COUNTY HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	901	901	3300		06/12/1990	
00231	TEKNICA MONITOR TJ2077	C	C49813412	901	3301		06/12/1990	
00312	TOSHIBA VCR M-6007	C	21632134	901	3303		06/12/1990	

RESOURCE CODE	RESOURCE NAME	WHO OWNS	SERIAL NUMBER	CART NUMBER	STAR NUMBER	ASSET NUMBER	INSTALLATION DATE	LAST MAINT
00420	PRINTER SEIKOSHA SP-1200AI	C	0205983	901	3308		06/12/1909	
00600	NUMONICS DIGITAL TABLET	C	300281	901	3309		06/12/1990	
01100	Ku RECEIVER (GI)	C	AC3120061601	901	3306		06/12/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	1779	901			09/05/1990	
5987	-WILLIAMSFIELD HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	820	820	2600		06/28/1990	
00231	TEKNICA MONITOR TJ2077	C	C49813070	820	2601		06/28/1990	
00334	TEKNIKA VCR 881	C	D03913218	820	2603		06/28/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204803	820	2608		06/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	820			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300229	820	2609		06/28/1990	
01100	Ku RECEIVER (GI)	C	AC3110025644	820			08/07/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002080	820			01/31/1991	
6042	-WITT SCHOOL							
00100	AUDIO VIDEO UNIT	C	825	825	2650		06/28/1990	
00231	TEKNICA MONITOR TJ2077	C	C49813037	825	2651		06/28/1990	
00334	TEKNIKA VCR 881	C	D03913271	825	2653		06/28/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204929	825	2658		06/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	825			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300193	825	2658		06/28/1990	
01100	Ku RECEIVER (GI)	C	MAC3120128540	825	2656		06/28/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001697	825			08/10/1990	
5899	-WOODVILLE HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	672	672	1163		01/06/1990	
00211	TOSHIBA MONITOR CF2028A	C	58425969	672	1164		01/06/1990	
00310	TOSHIBA VCR M-6000	C	23323871	672	1166		01/06/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0210940	672	1171		01/06/1990	
01100	Ku RECEIVER (GI)	T	MAC3120091028	672	1169		01/06/1990	
6172	-WYANET HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	836	836			08/08/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812598	836			08/08/1990	
00334	TEKNIKA VCR 881	C	H34940942	836			08/08/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204687	836			08/08/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	836			10/01/1990	
01100	Ku RECEIVER (GI)	C	AC4020133015	836			08/08/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001614	836			08/08/1990	
6135	-YAZOO CITY HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	764	764			05/03/1989	
00231	TEKNICA MONITOR TJ2077	C	C50813721	764			05/03/1989	
00332	TEKNIKA VCR 882	C	D48810110	764			05/03/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211158	764			05/03/1989	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	764			10/10/1990	

RESOURCE CODE	RESOURCE NAME	WHO OWNS	SERIAL NUMBER	CART NUMBER	STAR NUMBER	ASSET NUMBER	INSTALLATION DATE	LAST MAINT
00600	NUMONICS DIGITAL TABLET	C	300255	764			05/03/1989	
01100	Ku RECEIVER (GI)	C	MAC3110037254	764			08/27/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001732 (9,,,)	764			09/07/1990	
6134	-YAZOO CITY JUNIOR HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1004	1004			09/11/1989	
00211	TOSHIBA MONITOR CF2028A	C	18415597	1004			09/11/1989	
00317	TOSHIBA VCR M-5483	C	18634554	1004			09/11/1989	
00421	PRINTER SEIKOSHA SP-1600AI	C	0211393	1004			09/11/1989	
00510	UNIDEN XE-250 CORDLESS PHONE	C	.	1004			09/07/1990	
01100	Ku RECEIVER (GI)	C	892203587	1004			09/11/1989	
01500	SUBSCRIBER INTERFACE DEVICE	C	002146	1004			09/07/1990	
6043	-YORKWOOD HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	812	812	2520		06/28/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812512	812	2521		06/28/1990	
00334	TEKNIKA VCR 881	C	D03913154	812	2523		06/28/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204760	812	2528		06/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	812			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300159	812	2529		06/28/1990	
01100	Ku RECEIVER (G1)	C	AC3120100874	812	812		10/31/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001700	812			07/08/1990	
4019	ALL SOULS SCHOOL							
00100	AUDIO VIDEO UNIT	C	1000	1000	3694		06/22/1990	
00211	TOSHIBA MONITOR CF2028A	C	18415541	1000	3695		06/22/1990	
00314	TOSHIBA VCR M-1287	C	18634900	1000	6397		06/22/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0211392	1000	3702		06/22/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	1000			10/15/1990	
00600	NUMONICS DIGITAL TABLET	C	0779289	1000	3703		06/22/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	892011209	1000	3700		06/22/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001424	1000			08/01/1990	
5984	INDUSTRY HIGH SCHOOL #165							
00100	AUDIO VIDEO UNIT	C	802	802	2420		06/27/1990	
00231	TEKNICA MONITOR TJ2077	C	C49802490	802	2420		06/27/1990	
00334	TEKNIKA VCR 881	C	D03913026	802	2423		06/27/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204928	802	2428		06/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	802			10/01/1990	
00600	NUMONICS DIGITAL TABLET	C	300241	802	2429		06/27/1990	
01100	Ku RECEIVER (G1)	C	AC3120063041	802	3116		08/02/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	002178	802			09/17/1990	
14001	LITTLEFILED HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	1063	1063	4131		06/20/1990	
00214	TOSHIBA MONITOR CF2041	C	60490049	1063	4132		06/20/1990	
00313	TOSHIVA VCR M-1283	C	20722097	1063	4134		06/20/1990	

RESOURCE CODE	RESOURCE NAME	WHO OWNS	SERIAL NUMBER	CART NUMBER	STAR NUMBER	ASSET NUMBER	INSTALLATION DATE	LAST MAINT
00420	PRINTER SEIKOSHA SP-1200A1	C	0210823	1063	4139		06/20/1990	
00510	UNIDEN XE-250 CORDLESS PHONE	C	.	1063			08/06/1990	
00530	AT&T MODEL 530, TELEPHONE	C	.	1063	4136		10/15/1990	
00600	NUMONICS DIGITAL TABLET	C	0786289	1063	4140		06/20/1990	
01202	C band RECEIVER, TRACKER 8 PLUS	C	892204932	1063	4137		06/20/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001517	1063			08/06/1990	

RESOURCE CODE	RESOURCE NAME	WHO OWNS	SERIAL NUMBER	CART NUMBER	STAR NUMBER	ASSET NUMBER	INSTALLATION DATE	LAST MAINT
5528	UNION HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	382	382			05/23/1990	
00100	AUDIO VIDEO UNIT	C	785	785	2260		05/23/1990	
00213	TOSHIBA MONITOR CF2033	C	37518657	382			11/20/1990	
00231	TEKNIKA MONITOR TJ2077	C	C50813662	785	2261		05/23/1990	
00310	TOSHIBA VCR M-6000	C	69322972	382			05/23/1990	
00316	TOSHIBA VCR M-7603	C	29632347	785	2263		05/23/1989	
00420	PRINTER SEIKOSHA SP-1200AI	C	0210957	382			05/23/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0204951	785	2268		05/23/1990	
00510	UNIDEN XE-250 CORDLESS PHONE	C	.	785			07/18/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	382			09/28/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	785			09/28/1990	
00600	NUMONICS DIGITAL TABLET	C	0417289	785	2260		05/23/1990	
01100	Ku RECEIVER (GI)	C	AC3120111674	382			05/23/1990	08/21/1990
01100	Ku RECEIVER (GI)	C	MAC3110028030	UKN			11/09/1990	
01100	Ku RECEIVER (GI)	C	MAC3100008892	785	2266		05/23/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001279	382			07/17/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001184	785			07/18/1990	
7058	ROCINANTE HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	UKN	UKN			01/18/1991	
00211	TOSHIBA MONITOR CF2028A	C	18415811	UKN			01/18/1991	
00313	TOSHIBA VCR M-1283	C	39529910	UKN			01/18/1991	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205862	UKN			01/18/1991	
00530	AT&T MODEL 530, TELEPHONE	C	NONE	UKN			01/18/1991	
01202	C band RECEIVER, TRACKER 8 PLUS	C	892009819	UKN			01/18/1991	
01500	SUBSCRIBER INTERFACE DEVICE	C	001544	UKN			01/18/1991	
5781	HERTFORD COUNTY HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	456	456			12/29/1989	
00100	AUDIO VIDEO UNIT	C	783	783	2240		05/22/1990	
00215	TOSHIBA MONITOR CX2057	C	23446408	456			12/29/1989	
00231	TEKNIKA MONITOR TJ2077	C	C50813742	783	2241		05/22/1990	
00310	TOSHIBA VCR M-6000	C	69623210	456			12/29/1989	
00316	TOSHIBA VCR M-7603	C	29631911	783	2243		05/22/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0212691	456			12/29/1989	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205125	783	2248		05/22/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	783			09/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	456			09/27/1990	
00600	NUMONICS DIGITAL TABLET	C	0205125	783	2248		05/22/1990	
01100	Ku RECEIVER (GI)	T	AC4020176496	456			12/29/1989	
01100	Ku RECEIVER (GI)	C	AC3120128460	783	2246		05/22/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001191	546			07/19/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001175	783			07/18/1990	

RESOURCE CODE	RESOURCE NAME	WHO OWNS	SERIAL NUMBER	CART NUMBER	STAR NUMBER	ASSET NUMBER	INSTALLATION DATE	LAST MAINT
5445	TABOR CITY PRIMARY HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	799	799	2390		05/23/1990	
00214	TOSHIBA MONITOR CF2041	C	60490718	384			05/30/1990	
00231	TEKNIKA MONITOR TJ2077	C	C49813051	799	2391		05/23/1990	
00313	TOSHIVA VCR M-1283	C	20721879	384			05/30/1990	
00334	TEKNIKA VCR 881	C	D03913027	799	2393		05/23/1990	
00420	PRINTER SEIKOSHA SP-1200AI	C	0211137	384			05/30/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205836	799	2398		05/23/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	799			09/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	384			09/27/1990	
00600	NUMONICS DIGITAL TABLET	C	300228	799	2390		05/23/1990	
01100	Ku RECEIVER (GI)	C	AC100011052	384			05/30/1990	
01100	Ku RECEIVER (GI)	C	AC404469101	799	2396		05/23/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001932	384			10/09/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001190	799			08/01/1990	
6325	-GLENWOOD HIGH SCHOOL							
00100	AUDIO VIDEO UNIT	C	845	845	2860		09/27/1990	
00231	TEKNICA MONITOR TJ2077	C	C49812548	845	2861		09/27/1990	
00334	TEKNIKA VCR 881	C	D03913222	845	2863		07/29/1990	
00421	PRINTER SEIKOSHA SP-1600AI	C	0205161	845	2868		09/27/1990	
00530	AT&T MODEL 530, TELEPHONE	C	N/A	845			10/02/1990	
00600	NUMONICS DIGITAL TABLET	C	300242	845	2869		09/27/1990	
01100	Ku RECEIVER (GI)	C	AC4040447657	845	2866		09/27/1990	
01500	SUBSCRIBER INTERFACE DEVICE	C	001693	845			09/27/1990	

PARTNERS' SCHOLARSHIPS

TI-IN UNITED STAR NETWORK.

STATE	STAR	SITE	STUDENT	COURSE
IL	*	ASTORIA HS	ERIC FARWELL	MARINE SCI.
IL	*	ASTORIA HS	ERIC FARWELL	ASTRONOMY
IL	*	BLUFFS HS	HEATHER SPARROW	ANATOMY
IL	*	CHRISTOPHER COMM HS	TERRY DAWN HALL	ANATOMY
IL	*	DALLAS CITY CUD #336	CANDI ROCKEL	JAPANESE I
IL	*	DUPO HS	JAMIE DOERR	GERMAN I
IL	*	GORHAM HS	SCOTT SHIELDS	SOCIOLOGY
IL	*	GORHAM HS	SCOTT SHIELDS	PSYCHOLOGY
IL	*	HARRISBURG	AMANDA CARTER	ASTRONOMY/MS
IL	*	ILLINI CENTRAL HS	JENNIFER HENDRIX	FRENCH II
IL	*	INDUSTRY CUSD #165	TIM HENNINGS	PSYCHOLOGY
IL	*	INDUSTRY CUSD #165	TIM HENNINGS	SOCIOLOGY
IL	*	LIBERTY HS	CRAIG SIMS	SPANISH II
IL	*	MERIDIAN HS	ILLORI JEANEA HUNT	SPANISH I
IL	*	PLEASANT HILL HS	JEFF ADAMS	ASTRONOMY
IL	*	PLEASANT HILL HS	JEFF ADAMS	MARINE SCI.
IL	*	ROSEVILLE #200	AMY M. GERALD	GERMAN II
IL	*	SOUTHEASTERN HS	JOHN MARK SOWDER	SPANISH I
IL	*	VIENNA HS	ANGELA GILBERT	SPANISH II
IL	*	WEST PIKE	KIM WRIGHT	GERMAN I
IL	*	WESTERN HS	JASMINE RUTH PIA	SPANISH I
IL	*	WESTMER CUSD #203	TONY BRANT	GERMAN I
IL	*	WYANET COMMUNITY HS	B.J. DAVIS	ASTRONOMY/MS
IL	*	BENTON HS	CHRISTOPHER D. SMITH	ASTRONOMY
IL	*	CALHOUN HS	ELWYN MIELKE	SPANISH I
IL		FLORA CUSD #35	MAJOR RAY MUGRAGE	FRENCH I
IL	*	LA HARPE HS	ROBIN FARQUHAR	PSYCHOLOGY
IL		MID-COUNTY #4	AARON WEBER	ASTRONOMY
IL	*	NORTHWEST CUSD #175	KRISTA J. HANSEN	GERMAN I
IL		SERENA CUSD #2	TANYA SCHNABEL	SOCIOLOGY
IL	*	THOMPSONVILLE HS	JEREMY HATCHETT	SPANISH I
IL		TOLUCA CUSD #2	JOHN SCHUMACHER	PHYSICS
CA	*	BURNEY JR/SR HS	JENNIFER THOMASEN	ASTRONOMY
CA	*	BURNEY JR/SR HS	JENNIFER THOMASEN	MARINE SCI.
CA	*	BURNEY JR/SR HS	DAWN VOET	FRENCH II
CA	*	DOS PALOS HS	FRANK TEIXEIRA	GERMAN II
CA	*	HAPPY CAMP HS	MINI FRANK	SPANISH I
CA	*	HAPPY CAMP HS	MINI FRANK	MARINE SCI.
CA	*	HAPPY CAMP HS	MINI FRANK	ASTRONOMY
CA	*	HAPPY CAMP HS	LYNN HUNTSMAN	SPANISH I
CA	*	HAPPY CAMP HS	LYNN HUNTSMAN	MARINE SCI.
CA	*	HAPPY CAMP HS	LYNN HUNTSMAN	ASTRONOMY
CA	*	HERLONG HS	TINA CURTIS	FRENCH II
CA	*	HERLONG HS	KATIE GROSTICK	FRENCH II
CA	*	HERLONG HS	STEEN FULLER	ASTRONOMY
CA	*	HERLONG HS	STEEN FULLER	MARINE SCI.
CA	*	HERLONG HS	MIKE PELFREY	ASTRONOMY
CA	*	HERLONG HS	MIKE PELFREY	MARINE SCI.

STATE	STAR	SITE	STUDENT	COURSE
CA	*	HILMAR JR/SR HS	ERICA PETERS	FRENCH I
CA	*	HILMAR JR/SR HS	JAMIE DEBRUIN	JAPANESE I
CA	*	MODOC HS	KATHY TRENT	MARINE SCI.
CA	*	MODOC HS	KATHY TRENT	ASTRONOMY
CA	*	MODOC HS	POPPY MARTINEZ	ASTRONOMY
CA	*	MODOC HS	POPPY MARTINEZ	MARINE SCI.
CA	*	PLIOCENE RIDGE HS	ASTRID JOHNSON	ELEM SPANISH
CA	*	PLIOCENE RIDGE HS	MATT HALL	ELEM SPANISH
CA	*	PLIOCENE RIDGE HS	CODY SANDER	ELEM SPANISH
CA	*	PLIOCENE RIDGE HS	REX SUNDSTROM	ELEM SPANISH
CA	*	PLIOCENE RIDGE HS	JEREMIAH LOCOTELLI	ELEM SPANISH
CA	*	PLIOCENE RIDGE HS	ALI JOHNSON	ELEM SPANISH
CA	*	TRONA HS	LARRY ISOM	GERMAN II
CA	*	TRONA HS	SHAWNEE SIZEMORE	GERMAN II
AZ	*	HOPI JR/SR HS	NICOLE BAHMIMPTEWA	SPANISH I
AZ	*	HOPI JR/SR HS	WILMA KAYE	SPANISH I
CO	*	ELLICOTT HS	PAT GROVE	FRENCH I
NM	*	TO'HAJILEE-HE	ANDREA WILLIS	SPANISH I
NM	*	TO'HAJILEE-HE	LESLIE SECATERO	SPANISH I
NY	*	RIPLEY CENTRAL HS	RACHEL CURTIN	A/P ENGLISH
NY	*	RIPLEY CENTRAL HS	CHRISTINE SWOGER	FRENCH I
OR	*	MADRAS HS	ERICA LUCE	JAPANESE I
OR	*	UKIAH HS	BRANDY HANSELDEN	SPANISH I
OR	*	UKIAH HS	TRACEY BAILEY-BIRD	SPANISH I
SD	*	CHEYENNE EAGLE BUTTE	LESLIE CULLIS	FRENCH II
SD	*	CHEYENNE EAGLE BUTTE	ALTHEA MEETER	AP ENGLISH
TN	*	COFFEE CO.	RYAN MASON	LATIN I
TN	*	COFFEE CO.	JEFF BRANNON	LATIN I
TX	*	BOSQUEVILLE ISD	JENNIFER GRABEL	PSYCHOLOGY
TX	*	BOSQUEVILLE ISD	JENNIFER GRABEL	SOCIOLOGY
TX	*	CAMPBELL K-12 SCHOOL	APRIL CLEM	ELEM SPANISH
TX	*	CAMPBELL K-12 SCHOOL	LISA FOWLER	ELEM SPANISH
TX	*	CAMPBELL K-12 SCHOOL	ANDY HODO	ELEM SPANISH
TX	*	CAMPBELL K-12 SCHOOL	AMY LACOOK	ELEM SPANISH
TX	*	CAMPBELL K-12 SCHOOL	SCOTT SATTERWHITE	ELEM SPANISH
TX	*	CAMPBELL K-12 SCHOOL	WENDY TOLAND	ELEM SPANISH
TX	*	COVINGTON ISD	SHANDA KAYE EVETTS	SPANISH II
TX	*	CROCKETT ISD	GWYNNE FINCHER	FRENCH II
TX	*	D'HANIS HIGH SCHOOL	LISA KOCH	SPANISH I
TX	*	D'HANIS HIGH SCHOOL	LORI ZERR	SPANISH I
TX	*	GOLD BURG ISD	ABIGAIL ADAMS	AP ENGLISH
TX	*	HAMILTON ISD	DANNA ROBERTS	SPANISH I
TX	*	HAMILTON ISD	JEFF DAVIS	SPANISH I
TX	*	HAMILTON ISD	CHRISTOPHER SHARPE	SPANISH I
TX	*	HAMILTON ISD	MICHAEL MULLOY	SPANISH I
TX	*	HEDLEY HIGH SCHOOL	MARISOL ANDAVERDI	SPANISH I
TX	*	HEDLEY HIGH SCHOOL	APRIL BRAMBLETT	SPANISH I
TX	*	HEDLEY HIGH SCHOOL	STEPHEN SCITERN	TRIG/ELE ANAL
TX	*	HEDLEY HIGH SCHOOL	TYLENA BRIGHT	SPANISH I
TX	*	HEDLEY HIGH SCHOOL	SUSAN LEE	SPANISH I
TX	*	INGRAM TOM MOORE HS	AMANDA YARBRO	FRENCH I

STATE	STAR	SITE	STUDENT	COURSE
TX	*	INGRAM TOM MOORE HS	SHELLY DUGLOSCH	FRENCH I
TX	*	JAYTON-GIRARD	ZACH FREEMYER	FRENCH II
TX	*	MAUD ISD	RYAN FOSTER	SPANISH II
TX	*	MAUD ISD	KEITH TOWNSEND	SPANISH II
TX	*	MCLEOD ISD	CHAD HELDT	SPANISH II
TX	*	MCLEOD ISD	KARA SUE YATES	SPANISH I
TX	*	PEARSALL HS	JOHN BURKS	JAPANESE I
TX	*	PENELOPE ISD	REBECCA DVORAK	SPANISH I
TX	*	PENELOPE ISD	MELISSA RENE KLANIKA	SPANISH I
TX	*	PENELOPE ISD	REBECCA ANN SNOKHOUSE	SPANISH I
TX	*	PRAIRIE VALLEY	GARRETT JOHNSON	SPANISH I
TX	*	PRESIDIO ISD	DAVID LUJAN	AP ENGLISH
TX	*	UNION HILL ISD	ROBIN FORT	SPANISH I
TX	*	UNION HILL ISD	JESSICA NEAL	SPANISH I
TX	*	VEGA ISD	ANGELINE DONATHAN	PSY/SOC
TX	*	VEGA ISD	STACEY GRONEMAN	PSY/SOC
TX	*	VEGA ISD	DAVID WARD	ASTRONOMY/MS
TX	*	VEGA ISD	DAVID WARD	ANA/PHSIOLOGY
TX	*	VEGA ISD	ADAM ARTHO	ASTRONOMY/MS
WA	*	OAKVILLE ISD	VANESSA HUTTON	FRENCH I
NC		CLARKTON HS	LAWRENCE BELL	SPANISH II
NC		TAR HEEL HS	STEVEN J. SINGLETARY	MARINE SCI.
NC		TAR HEEL HS	STEVEN J. SINGLETARY	ASTRONOMY
NC		BUNN HS	JOSEPH ALLMAN	LATIN I
NC		BUNN HS	CAROLYN WILKINSON	LATIN I
NC		BUNN HS	PATRICK DENTON	LATIN I
NC		BUNN HS	TERA JONES	LATIN I
NC		BUNN HS	MELISSA MURPHY	LATIN I
NC		BUNN HS	GINA BENNETT	LATIN I
NC		BUNN HS	JASON O'NEAL	LATIN I
NC		FRANKLINTON HS	DENITA ANDERSON	LATIN I
NC		FRANKLINTON HS	CORISSA SHEARIN	LATIN I
NC		FRANKLINTON HS	DEBORAH EARP	LATIN I
NC		FRANKLINTON HS	ANN BONINI	LATIN I
NC		FRANKLINTON HS	MICHAEL EDGERTON	LATIN I
NC		FRANKLINTON HS	DANIEL FINN	LATIN I
NC		FRANKLINTON HS	SONYA GOOCH	LATIN I
NC		HOBBTON HS	ANDRA KELLON	ELEM ANAL/TRIG

MS	*	ALCORN SD - KOSSUTH HS	AMY SIMMONS	SPANISH II
MS	*	ALCORN SD - BIGGERSVILLE	CHRISTY BROWN	SPANISH I
MS	*	ALCORN SD - ALCORN CENTRAL	BRANDI L RUSSELL	SPANISH I

ABOVE 3 COULD COME FROM ALCORN CENTRAL, BIGGERSVILLE, OR KOSSUTH SCHOOLS. THIS IS IN ADDITION TO THE ONE OFFERED PREVIOUSLY TO KOSSUTH HS.

MS	*	AMANDA ELZY	MARY HILL	SPANISH I
MS	*	BYRUM HS	SCOTT JOHNSON	GERMAN I
MS	*	BYRUM HS	CHARLES KROUT	GERMAN I
MS	*	BYRUM HS	JASON BOWERS	GERMAN I

STATE	STAR	SITE	STUDENT	COURSE
MS	*	BYRUM HS	SCOTT CAMPBELL	GERMAN I
MS	*	KOSSUTH HS	BRENDA SMITH	SPANISH II
MS	*	LEFLORE CO.	KORNELLA MCMORRIS	SPANISH I
MS	*	LEFLORE CO.	LEMERICK DUNN	SPANISH I
MS	*	RAYMOND HS	GAIL LAWSON	FRENCH I
MS	*	UTICA HS	MARK DAVIS	TRIGONOMETRY
MS	*	UTICA HS	MARK DAVIS	ELEM ANAL.
MS	*	UTICA HS	BERNICE JONES	TRIGONOMETRY
MS	*	UTICA HS	BERNICE JONES	ELEM ANAL.
AL	*	CALHOUN HS	VERSHAN TOLLIVER	A/P
AL	*	CALHOUN HS	BERNADETTE WHITSTONE	SPAN II
AL	*	CALHOUN HS	WILLISA BURNEY	SPAN II
AL	*	CALHOUN HS	KAREN HENDERSON	SPAN II
AL	*	CALHOUN HS	LEKEISHA GRIFF	SPAN II
AL	*	CALHOUN HS	TERA SHUFFORD	SPAN II
AL	*	PICKENS COUNTY HS	ANTONIO NOLAND	Astronomy/Marine Sci
AL	*	PICKENS COUNTY HS	WM. LAESIG	Astronomy/Marine Sci
AL	*	PICKENS COUNTY HS	JOE GUY	Astonomy/Marine Sci
AL	*	PICKENS COUNTY HS	JENNY GRIFFIN	French II
AL	*	PICKENS COUNTY HS	JAMIE FAZEKAS	Spanish I
AL	*	PICKENS COUNTY HS	DANIEL GRIFFIN	Spanish I
AL	*	SELMA HS	RITA FRY	ANATOMY/PHYSIOL
AL	*	SELMA HS	KEISHA SMITH	SPAN I
AL	*	SELMA HS	TIFFANY MOORE	PSYCHOLOGY/SOCIO
AL	*	SELMA HS	TRACY HICKS	ANATOMY/PHYSIOL
AL	*	SELMA HS	DWAN HARRELL	PHYSICS

TI-IN UNITED STAR NETWORK
FINAL PROJECT REPORT
(OCT 1, 1988 - SEPT 30, 1990)

EVALUATION

FOR
UNITED STATES
DEPARTMENT OF EDUCATION

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TI IN UNITED STAR NETWORK

TI-IN UNITED STAR NETWORK

PROGRAM AND PROCESS EVALUATION

SUMMER 1989

EVALUATION PILOT

Jennings Bryant

with

Scott Davenport

Jana Hyde

Debbie Elliott-Taylor

University of Alabama

Report submitted to the TI-IN United Star Network, July 14, 1989, pursuant to our contract of April 7, 1989.

TI-IN United Star Network

Program and Process Evaluation

Summer 1989

Purpose

Pilot studies were conducted to evaluate the TI-IN United Star Network's Summer 1989 programs. The primary purpose of the evaluation was to provide preliminary information regarding the effectiveness and appeal of four satellite-delivered interactive courses or teacher development institutes delivered by the TI-IN Network and its partners during this period. The courses evaluated were:

a. The *Physical Science* course presented by Education Service Center - Region 20 (Texas);

b. The *Algebra II* course, also from Education Service Center - Region 20 (Texas)

c. The *Foreign Language in the Elementary School* (FLES) staff development series from the North Carolina Department of Public Instruction; and

d. The *BioPrep Teacher Institute* from the University of Alabama.

Method

Three complementary methods of evaluation were employed:

a. Direct observation in classes,

b. Interviews with course participants, and

c. Review of course content by panels of experts.

Direct observation. The Principal Investigator and/or graduate research assistants visited TI-IN United Star Network sites during a time in which the class was participating in a lesson. Detailed descriptions are provided of the nature of the site, of the class, of the nature of the students' participation, of the work of the facilitators, and of other items perceived to be of interest to the TI-IN United Star Network principals.

Interviews with participants. Interviews were conducted with students, facilitators, and, where possible, with school administrators. The questions asked ranged from the participants' reactions to the TI-IN technology and teaching process to their satisfaction with the course and their instructor.

Evaluations by experts. A panel of independent experts reviewed videotapes of from three-five classes of each course. The primary panel was comprised of a university professor who is recognized internationally as an expert in televised instruction, an experienced commercial producer of instructional television programs and videodiscs, and at

least two elementary or secondary school teachers who specialize in the subject matter covered in the particular tapes being evaluated. Because the tapes evaluated by the panel of experts were of the three-five initial classes in each course, a second panel comprised of three graduate students at the University of Alabama viewed tapes of at least one class from a later portion of each course, comparing the latter classes with the earlier presentations. The panels evaluated the tapes for production proficiency as well as for issues of pedagogy and content.

Surveys. The evaluation team had intended to conduct a survey of a sample of participants at the end of each course to provide a pilot summative evaluation. However, because of limited enrollments, in two instances most of the participants in a course had already been interviewed extensively by an evaluator in the interviews which followed the in-class observations (*Physical Science. Algebra II*). In another case, too few students had registered for the course to guarantee respondent anonymity (*BioPrep*). In the only course in which the registration was sufficiently large to permit a survey (*FLES*), the sponsoring partner had already scheduled a written survey which was to be shared with TI-IN. Therefore, no surveys were conducted; the evaluations by the panel of experts were substituted for the surveys.

Evaluation Reports

In addition to the present written report which is being presented to the Project Director for dissemination as she sees fit, an oral report was presented to the producers, teachers, and supervisors of three of the four courses. The *FLES* course had concluded by the time the evaluation process was completed; therefore, no oral report to the North Carolina Department of Public Instruction was scheduled. The Principal Investigator will be pleased to visit with this partner if an oral report is desired, however.

Course Evaluations

Algebra II

Site visit: Louisburg, NC. On Wednesday, June 28, Principal Investigator Jennings Bryant and Research Assistant Scott Davenport traveled to Louisburg, North Carolina to observe and interview students in the largest of the *Algebra II* classes. Louisburg is a mid-size piedmont town that serves as the population center of a rather large rural county. The class met in a relatively spacious classroom in the Louisburg High School.

We were met at the site by Valerie Harris, the course facilitator. Ms. Harris escorted us to the classroom, and we talked about the course and the students while she set up and tested the TI-IN equipment. She was most proficient in the set-up. She also provided each of the evaluators with

copies of instructional materials for that day's lesson and loaned us copies of the textbook of the course for our examination.

The class was comprised of seven students. It was ethically diverse, with four black and three white students; however, there was only one female class member. Each student arrived for the class well before the time of the telecast; in fact, the first student arrived 25 minutes early. Ms. Harris cheerfully greeted each student and chatted informally with him or her, in the process determining whether homework had been done and whether any student had had problems with the previous lessons.

As we found out from interviewing the students as well as from our observations, in this class the range in student knowledge of and interest in algebra is extremely large. One student had failed Algebra II in his regular class during the spring and was doing remedial work. Another (who, incidentally, happens to be the winner of a national whistling contest) is a candidate for admission to the North Carolina School for Math and Science and seemed to be treating the course as an opportunity for enrichment. Three other students were taking the class prior to their senior year so that they would have more time for fall football (two huge linemen and a tight end/linebacker). The other two reported that they were interested in taking a different sort of class; one in particular professed to be a "technology freak." The students attended three different

high schools. Some of them had long drives, including one who had to drive 35 miles each way and was concerned because the Monday and Friday classes had made him late for "Bible School."

We observed the class for three hours, interviewing each student and Ms. Harris during breaks and after the class session.

We offer several <u>observations</u> made during our visit:

The morale of this class appeared to be quite high. The fact that the students arrived early and took their seats willingly is one index of that. In spite of the fact that it was a beautiful day and that some of the students had driven a substantial distance to get to Louisburg, no one seemed particularly reluctant to be in class.

Two of the students obviously were more advanced in algebra, and Ms. Harris, with instructor Norman's permission, had divided the class into two groups (n=3,4). One of the more advanced students served as an informal team leader for each group. The two leaders seemed to be quite proficient in helping some of the other group members where appropriate. The groups formed semi-circles, yet each member was at least partially oriented to the television screen.

The students were extremely attentive during the first hour time block, which included a quiz (#8). Visual attention to the screen ranged from ca. 30%-55% At first glance, this may seem to be low; but it must be remembered

that in addition to watching television, the students were also examining textbooks, conversing quietly about difficulties, reaching for the phone, asking Ms. Harris for help, and whatever. All in all, visual attention to the program seemed ideal.

One student obviously was a bit "behind" the others, and he's the only one who appeared to be reticent to work the problems as the teacher had instructed. However, both Ms. Harris and his team leader worked with him to help him maintain his interest and attention and to help him keep up with the other students. That process seemed to work very well.

In the *interviews*, each student was asked several questions designed to solicit open-ended answers; moreover, the students were encouraged to volunteer additional comments and to counsel us as to how this interactive telecourse could be made into a better learning experience.

Student responses seemed to be quite candid, and they were overwhelmingly positive about: the course, the TI-IN technology, the teacher (Fritz Norman), and their facilitator (Ms. Harris). In spite of our overt solicitation of negative feedback, 90+% of their comments were extremely positive. In fact, the only negative comments focused on relatively secondary issues (which should be addressed nonetheless):

1. The length of the Monday and Friday classes (10:00 a.m. - 4:30 p.m. E.D.T.) was unanimously judged to be too long;

2. Not everyone was enamored by the lap board (which had not been used in the past several days);

3. Ms. Harris noted that it would be convenient if the lap board could fit inside the A-V cart so that it did not have to be locked up separately and reattached every day; and

4. Thunderstorms had been prevalent in the Carolinas during the previous week and had interrupted reception on one or two occasions.

Each of the seven students had positive things to say about the program and teaching process:

1. First and foremost, their facilitator (Ms. Harris) came in for lavish praise. The students' genuine respect and admiration for the sensitive and efficient Ms. Harris was abundantly apparent.

2. Their teacher also rated an "A." Mr. Norman was spontaneously described by two students as "the best teacher I've ever had." Each student talked about him in positive terms--some "glowing," some even "personal" (e.g., one student said that he wanted to meet

Mr. Norman; another said that he thought that Mr. Norman should have a special place in the LHS yearbook, because he seemed to be so much a part of their faculty).

3. Students also unanimously liked their textbook, the technology, the pace of the lessons, the amount of review of previously covered math concepts, and the amount of attention they received from the teacher and facilitator.

4. We talked with each student and with Ms. Harris about the effectiveness of the call-in tutoring system. Some of the students had called Mr. Norman and were thrilled by his responsiveness, his patience, and his ability to clarify. On a couple of occasions, the teacher had been in meetings or at lunch when the students had called, but he had returned each call ASAP.

5. Each student was asked whether or not he or she felt that they had become a part of a larger, national "Algebra II classroom," or whether they felt isolated from the other sites. Most students felt that they were a part of an extended classroom; some said that they were even "getting to know" students at Medina, Cherokee Country, etc.

6. As was demonstrated repeatedly during our observations of this class, the students reported little or no remaining fear of using the telephone, and they reported that they could get the teacher's attention as well as (or better than) they could in their regular classroom. Although initially they had been apprehensive about using the interactive technology, they liked it now. Although the way that their teacher solicited (and demanded) their input had been a bit intimidating at first, they now reported accepting and even liking the fact that they might be called on at any time. Two students said that it helped them stay alert; one noted that it made him become a part of something special.

Several of the students indicated that they thought that the telephone access to the instructor, both during and after the class, was what made this class so special. Ms. Harris made it clear that she agreed. She told us, "It is the handset that makes the class work. The interactivity is the key. It ties in (cf. TI-IN) the students and gives them their link to the teacher."

7. Although it may have little to do with the course per se, it might be interesting to note

> that two of the students reported that something they had particularly enjoyed about this class was getting to know their fellow students better than they would in traditional classes. One student volunteered an explanation: he thought that Mr. Norman's questions led them into a lot of peer group discussions, and because they talked more than they did in normal classes, both to the teacher and to each other, that they had gotten to know each other quite well.

In terms of a *summary evaluation*, we found this to be one of the finest learning environments we have ever seen. It would be hard to imagine a more positive, relaxed, yet focused learning "set" and a better learning environment. The quality of the instructor is obviously a big factor, and we'll talk more about that later when we discuss the elements of a good distance learning instructor. But the facilitator, Valerie Harris, has to be given equal credit for the success of this particular class. To put it mildly, Ms. Harris was fantastic. She is the guidance secretary at Louisburg High School, and she was extremely nurturing, conscientious, and helpful. It is obvious that she really cares. She greeted each student cheerfully and personally, exerted firm but gentle control, used ideal classroom management skills, made sure the students were on the correct page or the text (even before Mr. Norman did),

followed along with the lesson herself so that she could help if need be, supervised student progress, called in when the students needed more time to complete their quiz, made sure that the telephone handset was readily available and was not dominated by one student, and generally did everything possible to run a "tidy" but friendly class. It is obvious that she would be an excellent classroom teacher.

Site visit II: Cherokee County (Centre), AL. To be totally candid, we were so overwhelmed by the positive experience we had observed in the Louisburg site visit that we decided to visit another *Algebra II* site to see if everything would go as well as it had at the first site. On Monday, July 10, Research Assistants Scott Davenport and Jana Hyde drove to Cherokee County High School, located in Centre, Alabama.

The facilitator at this site was Mr. Freddie Reynolds, the school principal. Mr. Reynolds evidently had screened the applicants for this class and had "hand picked" the four students who were enrolled. He said that he only wanted students in the class whom he felt could handle the work. During the day of the site visit, Mr. Reynolds was not present in the classroom during the lesson. He explained that he monitored quizzes and exams but typically did not remain in the room during the presentations. He indicated that his absence during these times had not been a problem, because two of the very bright students in the course were

most capable of handling the equipment and monitoring the interactions.

Our *observations* must start with some indication that the students at the Cherokee County site seemed to be quite different from those at Louisburg. No ethnic diversity was represented, as all four students are white (only one female again). One of the students in the class appeared to be an all-around "super star," and he performed some of the facilitator's typical functions. Indeed, he seemed to perform them rather well. He sat apart from the other students, handled the phone and other equipment, and offered help to the other students. A second student also seemed quite intelligent and assisted the star pupil with the class. The other two students had failed Algebra II during the year and were retaking the course. One of those students seemed generally to be a good student who had problems only in math. He seemed quite insecure with the class and often consulted with other students when working problems. The second repeat student seemed somewhat more independent and secure and was retaking the class so as not to fall behind her classmates.

As was the case in Louisburg, the students were very positive about the course and about their TI-IN experience. The negative comments were similar also:

1. The weather had occasionally interfered with the transmission of the picture and sound, but not with the phone system.

2. A couple of the students complained about Mr. Norman's small handwriting, but the problem was apparently alleviated when Mr. Norman provided oral redundancy, which he typically seemed to do.

3. Afternoon fatigue was stressed once again, and students remarked that boredom or satiation usually sat in around 2:00 p.m. C.D.T., no matter what the teacher did.

Positive comments and evaluations were more abundant. Specifically:

1. All of the students reported liking learning via satellite television and said they felt like a part of a larger class.

2. The class continued where their previous Algebra I class had terminated, with an appropriate amount of review and redundancy.

3. Mr. Norman was perceived to be an excellent teacher who explained the concepts thoroughly and made the class very interesting. They reported that Mr. Norman was as good as or better than any teacher they had ever had.

4. One student reported learning better from television, although no reasons could be elicited.

5. The students felt very comfortable with the telephone interactivity and with asking questions generally.

6. No member of this class had felt the need to use the tutoring service or to contact Mr. Norman outside of class.

7. The students reported that the tests and quizzes were fair and the textbook was thorough and extremely helpful.

In terms of an overall site evaluation, in spite of the fact that the Cherokee County characteristics are extremely different from those of Louisburg, the students deem the class to be a great success. From all indications, this seems to be true. We have twice heard Mr. Norman praise the class, and all indications available to us suggest that a great deal of learning is occurring and that the students remain highly motivated.

We would be remiss in not emphasizing that it appears to us that the educational benefits could be even greater if the Cherokee County facilitator could take a more active role in the class. Perhaps the TI-IN United Star Network officials need to make more clear to all facilitators the nature of their expectations and to provide models of ideal facilitators.

Evaluation by panel of experts. By and large the experts echoed the positive sentiments expressed by the students. In terms of *production* proficiency, the *Algebra*

II class was seen as a solid but not flashy effort. The visuals were evaluated positively, although the experts thought that Mr. Norman's writing could be larger and more legible. The background was seen as quite appropriate; the "cute" break cards were seen as positive; and in general the production elements were not seen as getting in the way of the content. One expert indicated that he wished the teacher would produce a few interesting field segments for the afternoon period, just to break the monotony, but he recognized that these would be more for fun than for learning.

The teacher was consistently praised for his *pedagogical* style. He was evaluated not only as a good teacher but as a fine television teacher. Among the positive comments were that "the host is friendly; he seems genuinely interested in students and the topic; he is very encouraging; he is animated and has a good interaction with callers; he lets the kids know not to be afraid to be wrong; he has interesting examples; his policy about asking questions is excellent; he is very well organized; he is patient during technical difficulties; and he gave excellent instructions on class policy and on the use of the equipment." The fact that he works the problems out with the students was seen to be a real plus in that he was willing to be vulnerable just as he was asking the students to take a bit of a risk via the interactivity.

Summary Comments. When high school students, especially those who have failed Algebra II already, consistently report liking a summer math class, everything has to be coming together exceptionally well. We found no serious flaws whatsoever with Mr. Norman or his exceptionally fine math class. The program makes fine use of the interactivity provided by the TI-IN system.

Physical Science

Site visit: Waelder, TX. TI-IN United Star Network Project Director Pamela Pease and Principal Investigator Jennings Bryant visited the *Physical Science* site in Waelder, TX, on July 5, 1989. Waelder High School had previously been a TI-IN site, so use of the system was "old hat" to the administrative and supervisory personnel.

Waelder is a "crossroads town" of ca. 960 population located near I-10, 86 miles east of San Antonio and 119 miles west of Houston. According to all with whom we talked, the town is struggling for survival. Our initial meeting was with Waelder Independent School District Superintendent Dr. Robert L. Carruthers, Jr., who graciously provided us with information and insights into the locale and school population. Among the relevant information that indicates that this Star Schools program definitely is reaching a "high need" population in Waelder is the fact that Waelder's only industry is a sausage factory. Other businesses included three "Mom & Pop" grocery stores, a boot

shop, and a couple of service stations. We learned that although the geographic area served by the school system is very large, the school population (ADA) of the Waelder ISD is only ca. 200, and only 15 teachers are employed by the district. The Waelder ISD also has a large minority population, with ca. 65% Hispanic, 25% Black, and 10% White. Five-8 persons graduate from Waelder High School per year, and almost none of them attend college, although a few go on to a local "business school." Dr. Carruthers made it perfectly clear that in his mind, the TI-IN programming was the "salvation" of Waelder, since that was the only way in which the district could provide specialized or enrichment courses to the students.

Mr. Lorenzo Miles, Jr., the principal, offered the same sentiment spontaneously. He said, in a frank and not-at-all ingratiating manner, that "TI-IN was the best thing that had ever happened to his school," and he reiterated that this was his only practical vehicle for advanced courses. Mr. Miles took us to the TI-IN classroom--the school library--and introduced us to the course facilitator, Janie Melchor. Ms. Melchor is a library aide during the school year and proved to be an excellent resource person for the *Physical Science* class. When we met Ms. Melchor, she was tuning the TI-IN channel and arranging the classroom, although it was at least 15 minutes before time for the class to begin. She consistently proved to be well prepared, quite attentive and effective, and certainly most cordial and pleasant.

The four students were all present and attentive when the class started and we began our *observations*. All of the students are minority group members (two Black, two Hispanic), and once again only one female was enrolled in the class. As the lesson got underway, the students were very serious. Each was visually oriented to the screen, and each displayed high visual attention to the television monitor (from ca. 65% to 90+%). This course does not use a textbook, and the students were seated fairly close to the screen (ca. 5'-8' away), so visual attention was almost required by the setting.

After observing the group for some time, it seemed to Dr. Pease and me that the group was unusually quiet and reserved and was not responding as well as we thought was appropriate to the teacher's well-planned and expertly executed attempts to elicit interactivity. [This is a single-site course, so that alters the feedback process considerably.] We decided that we should utilize an approximately 30 minute test period to try to find out more about the students in the class. We were somewhat confused because the students seems highly motivated and attentive, yet they remained relatively passive in their interactivity, a style which contrasted dramatically with other classes we had observed.

Mr. Miles, the principal, was exceedingly cooperative. He reviewed each student's academic history with us thoroughly, providing us with a much clearer understanding

of the students' somewhat hesitant style of interaction. Without going into excessive detail, it should be noted that all four students had failed *Physical Science* during the school year; indeed, for three students, this was the third time around for this course. Each was a "C" student, and their standardized scores indicated an overall low level of academic achievement. For example, as 9th graders, none had passed all three points of the TEAMS test, and some of them had been retained in previous grades. Given this history as context, we returned to our observation with a far clearer understanding of the student's learning style.

When the test was collected and the lesson resumed, the students once again were very attentive, watching the monitor carefully. The lesson was on concave and convex lenses, and the instructor, David Marshall, was using audio-visual materials, including a fine videodisc program, extremely well. I had a tough time watching the students because the presentation was so interesting. A particularly effective device, which yielded 100% focused attention from the students, was Mr. Marshall's use of an arrow-cursor to highlight specific elements of the freeze-frame videodisc diagrams. The repetition and detail worked wonderfully for this group, as became apparent when Mr. Marshall finally got the students to respond to his questions. He asked simple, obvious questions initially, reinforcing the students' positive responses; then he began to ask more complex questions. When the students began to become more uncertain

with their answers and begin to discuss tentative answers among themselves before responding directly to Mr. Marshall, he reinforced their group deliberations positively. My only question regarding Mr. Marshall's feedback strategy was the fact that he may have relied too heavily on superlatives--using too many "greats" in response to ordinary answers to easy questions. After receiving this hyped and nonvaried feedback for some time, the students began to "raise their eyebrows" somewhat. It was easy to understand Mr. Marshall's exuberance, however; compared to our observations in other courses, eliciting responses from these students was so difficult that any success was bound to generate euphoria from a concerned teacher.

It should be noted that the videodisc material worked wonderfully. As long as this well-produced content was presented, the students were totally attentive. [So was the facilitator, and the evaluator.] At about 10:50 a.m. C.D.T., the students began to lose interest and yawn. It seemed for a moment that there might have been a bit too much redundancy regarding the concave and convex lenses. But this relative disinterest lasted less than a minute, because a wonderful pre-produced segment with a detective came on and totally recaptured their attention. By and large, this was a very attentive group, but they certainly did like and seem to need their breaks. I'd surely like to have the "concession" contract at Waelder, as each student gobbled "munchies" and soft drinks at every opportunity. A

useful pre-post test at this site would be a weigh-in/weigh-out.

It should be noted that we witnessed a couple of technical difficulties with this telecast. During the examination period, an audio "bleedover" from something going on at TI-IN or the Region 20 studios occurred. We heard a technician say "do not hang up" and "stand by, the instructor will be with you in a moment." Then a female voice was heard talking to Mr. Marshall, although we could not hear his reply. This interruption didn't seem to faze the students, but it should be looked into. Furthermore, at 11:28 a.m., the students were doing a practice set on lenses and needed more time. When Ms. Melchor tried to call Mr. Marshall, it took a couple of minutes for her to get through, although she was following all of the correct procedures. Later, at 11:42 a.m., Ms. Melchor tried to get through again to let Mr. Marshall know that the class needed more time on an exercise. She tried and tried but was never able to get through although her "red light" was on. It seemed like the control engineer may have had the volume down. It made the conscientious Ms. Melchor somewhat frustrated, although she handled the necessary adjustments in class procedures very well.

Ms. Melchor was an excellent resource person, and, given the sparse equipment at this site, she really had to scramble for resources. When the students needed straight edges, she quickly retrieved some. During a break, she took

the initiative to find some lenses to serve as realia for the students to examine. In general, she seemed to be quite efficient, devoted, and effective.

The *interviews* with the students were extremely revealing, especially in light of each student's history of academic low achievement. Because of this, and because the students were rather talkative, a summary of the highlights of each interview is presented.

Student #1 volunteered that this was a "really good course" and that the "teacher was far better than his regular teachers." He really liked the "adventure" format and the videodisc material. More importantly, he reported that he finally seemed to be understanding "this stuff" and was enjoying the learning. He particularly like the fact that he was mastering the labs.

Student #2, who also liked the class "a lot," provided some real insight to an aspect of the TI-IN United Star School educational process that I'd never thought about. She reported, "I've never chosen to answer a question in class prior to this course." In fact, she couldn't ever remember having answered a question in class nonvoluntarily. She said, in slightly different words, that the forced interactivity had improved her confidence. She reported that she did not "feel nervous about talking now, because we do it every day." And she said that she would probably ask questions and discuss things more freely in other classes because so found that "it feels good to talk and it doesn't

hurt to get things wrong." Moreover, she volunteered that she thinks that the teacher is good, and she "likes watching TV anyway, so it's easier to learn this way." Although this did not fit our observation, she said that she didn't mind using the phone any more.

The third student "wasn't much of a talker," in his own words, and he had obviously discovered our agenda, because he immediately blurted out, "I like the class just the way it is. It's a real good class." He reported that he usually doesn't "do so good" in math and science, but he reported feeling like he was learning a lot more this time. He particularly liked the "big pictures" which made it easier to see things. [He may have a vision problem, because he was not wearing glasses and he squinted while watching the screen.]

The fourth and final student was obviously in a rush to get the interview over and had rehearsed what he was going to tell me. In a rush he blurted out that he liked "the labs, the detective, and the way we solve problems." He reported liking the class a lot, thought the teacher was "funny and great," and was confident that he was learning a great deal in the class.

One can't help but feel that this class is exactly what some of these students need to "jump start" their lives a little bit. Certainly it is obvious that they like the class a great deal. I tried to solicit negative as well as positive responses in several areas, but "nary a contrary"

word was forthcoming. It is obvious that the good folks of Waelder, Texas are loyal members of the TI-IN and Star Schools fan clubs.

Evaluation by panel of experts. The experts also liked the *Physical Science* program. In terms of *production* efforts, the only criticisms were: that the set was too busy and was distracting, that the director sometimes was too slow in cutting away from or to the computer screen, that the lighting on the computer screen was poor at times, and that the hand-written objectives were difficult to read and should be converted to graphics. Praise was offered for: the excellent camera work, the exciting introduction, the polished presentation, and the fine videodisc program.

Pedagogically, no major problems were noted. Positive remarks were directed toward the use of the 4X6 ID cards with the photo of the student, the expert use of the videodisc material, the excellent unit on chemical/lab safety with the use of real life examples, the well-chosen variety in teaching methods, the good use of lab tests, the careful review of previous materials, the effective use of realistic situations as a way of explaining new concepts, and the clever use of the detective. Several notes of merit were directed toward the instructor per se. He was seen to be very encouraging, well organized, enthusiastic, an excellent communicator, jovial with an appropriate amount of "silliness" for the students (our observations concur that the kids loved his occasional zaniness), the excellent

rapport-building techniques, the good eye contact, excellent use of hands, and a clear desire for interaction with students.

Summary comments. It is too bad that more sites and more students were not enrolled in this class, because this would have been an excellent opportunity to stretch the potential of the medium. One thing is clear from our visit to Waelder: the medium and the method can work for the personification of the Chapter 1 target audience. This is one fine course.

Foreign Language in the Elementary School

Site visit: Forsyth County/Winston-Salem Schools. On Tuesday, June 27, Principal Investigator Jennings Bryant and Research Assistant Scott Davenport traveled to Winston-Salem to visit the *FLES* site with the largest enrollment. The facility was wonderful. The class met in a comfortable and spacious multipurpose room with excellent lighting, visibility, air conditioning, etc. The technical and support personnel (e.g., engineers, secretary) were efficient, pleasant, and helpful. A technician came in to check out all of the equipment 30 minutes before class and checked in regularly during class to make sure that everything was going well. In fact, the environment could hardly have been better.

The class was a bit atypical on that day, because the facilitator, Claudette Jarrett, who is a foreign language

supervisor in the district, was a guest on that day's telecast, so she was in the studio in Raleigh. We're sorry we could not meet with Ms. Jarrett, because she did an excellent job in her televised interview.

To begin with an overall *observation*, this site was extremely different from others we visited. Part of that may have to do with being in a posh facility located in a rather well-to-do district in which the teachers had already had primary exposure to most of the guest experts presented in the *FLES* institute; a portion of the difference may have had to do with the fact that this was a teacher development program; and the fact that the teachers seemed to be getting some sort of credit for taking the class, as well as a variety of other factors, may have influenced the "tone" of the class. Moreover, all of the participants in this group were white and female, and all but one was already a FLES teacher.

One blatant difference from other courses was the lack of punctuality and attentiveness of some of the participants. When the lesson began (1:45 p.m. E.D.T.), only three of the seven students were present. Two of those students had arrived 15-20 minutes before class; the other arrived just before the class began. The early arrivals were all eager and enthusiastic. Late arrivals came at: 1:50, 1:54, 1:59, and 2:12 p.m. The roll was distributed at 1:59 p.m.. In general, those teachers who had arrived first sat in a semi-circle close to the monitor and were very

attentive throughout the class. The tardy teachers sat a greater distance from the screen, ate their lunches, cut out paper figures, talked among themselves at times, wrote letters, balanced a checkbook, and in general appeared to be only minimally interested in the lesson.

Certainly the inattentiveness was not entirely their fault. On that particular day (Reading and Writing, and Evaluation and Assessment, with Helena Curtain and Carol Pesola), the lesson was primary aural rather than audio-visual, the pace was sluggish, the visuals were not well produced and weren't particularly useful, when visuals were used they were removed from the screen far too soon, the talent team was less than inspirational, they read their script at points without even using a teleprompter, interactivity was rarely used and when it was used it was used in the worst possible way, the questions from the participants to the guests were terrible, and in general it wasn't a very interesting lesson. Each of the participants indicated that this was one of the two worst lessons they had watched (the other being the class on Oral Proficiency with Ron Schwartz, which our expert panel also panned), and the less attentive teachers indicated that they usually got more caught up with the program. By 2:45 p.m., many of the participants were yawning and squirming, and visual attention to the screen ranged from 20-50%. By 3:00 p.m., teachers were beginning to stand and stretch, and clock watching was the norm.

In spite of these negative elements, some aspects of the learning situation were very positive. I have already mentioned the model physical facility (the kids at Louisburg, Waelder, or Cherokee County would have thought they had died and gone to heaven to have had such a site); and the very informal, cordial class environment could have also worked extremely well, had the more social and chatty students not been so disruptive. The teachers obviously felt as ease, and they raised and lowered the volume of the audio when they felt it appropriate to do so; they laughed at Fran Hoch's humor (the guests no humor to speak of); they had useful professional discussions at points; and they took notes (ranging from 2 lines to more than a page) when appropriate. Also, at least one member of the class called in to ask the guests a question. [And she was appropriately disappointed when the question was misinterpreted.]

We *interviewed* four participants individually and asked the entire group a few questions, plus we talked with those who came early and stayed late. By and large, the class members were moderately positive about the course. They thought that Fran Hoch had done a good job as moderator, and they were very positive towards some of the guest experts. Those that came in for individual commendation were Myriam Met, Al Rubio, and Audrey Boynton. Those garnering negative notes were the Curtain/Pesola combination, Ron Schwartz, and David Boynton. They liked the practical foci and tended to dislike the theoretical discussions. The TI-IN teaching

process was generally reacted to positively, although they mentioned a number of instances of unclear phone lines, which we observed three times ourselves that day. In general, they liked being a part of a state and national classroom and would like more such "workshops."

The only "content" that was not perceived as being clear was from Dr. Swartz' presentation, and that lesson and the one we had just participated in were the only ones rated as "not very useful." In spite of our observations to the contrary, the participants reported that this workshop had maintained their interest and enthusiasm and had been moderately motivating. In terms of additional elements they wished had been present, several teachers mentioned that they would have liked to see more video of the classroom process. One teacher mentioned that presentationally and instructionally the programs had not been very interesting, although she too praised the content.

Criticisms were directed toward particular guests (see above), toward the quality of handouts and collateral material [Indeed, the single handout presented to date was poorly copied, with crooked text and lines through it; plus we were able to read the entire handout in 30 minutes.], toward phone interference, toward the quality of the questions asked by their peers at other sites [Amen!], and toward the quality of the production [although only two people mentioned that; cf. the panel of experts]. Probably because of recency effects, three people indicated that they

thought that that day's guests were "naive" or "were operating from such different experiences as to be useless." Classroom discussions and arguments during the presentation seemed to focus on the fact that the "experts'" experiences were derived from intensive 30 min/day, 5 day/wk programs which were unrealistic for what North Carolina teachers were experiencing. One teacher said that she taught each child only 30 min/wk and couldn't possible translate their approach to her class. Others "fussed" that the sort of testing advocated doesn't work for grades K-2, only for grades 3-5, etc. In fact, the entire session on evaluation featured intermittent "mutter back at the experts" times which were occasionally quite intense. From where we sat, these "experts" didn't come off as experts on evaluation at all, although they seemed to be perceived to be more expert on the topic of reading and writing.

Evaluation by panel of experts. By and large, the experts were not very "kind" to the *FLES* series. In terms of production, the only positive comment was that the explanation of how to use the equipment was done well. In contrast, over 40 negative items were mentioned regarding the production quality. To single out those most frequently mentioned, the need for the use of a teleprompter ranked number one, followed closely by criticism of the lighting and directing. The introduction was considered by some to be overly long and not very useful. The set was judged to be too cluttered, and the excessive number of "thank you so

and so" were perceived to make the production seem like "amateur hour" at points. Every evaluator criticized the excessive use of "talking heads" and the poor quality of the videotapes and slides. The need for quality visuals and graphics was frequently mentioned. One expert mentioned that if this had been submitted as a class project in his instructional television class, it would have barely passed. By and large, the consensus was that the medium was not utilized very well, that pre-production planning appeared to be minimal, and that coordination between talent and production staff appeared to be virtually nonexistent.

Regarding *pedagogical* elements, the friendly, competent host was most frequently mentioned as a positive feature. It was obvious that the experts as well as the teachers thought that Ms. Hoch was working hard to do a good job. The only criticism of her presentation was that she spoke too loudly when trying to solicit calls and that she was too kind to teachers calling in with "speeches rather than questions." In terms of the instructional objectives--as opposed to the production elements--many of the lesson seemed to be well planned. Especially noteworthy in that regard was the lesson with Myriam Met.

Criticisms were addressed regarding Ms. Hoch's occasionally speaking to the participants as if they were children, but the primary criticism was addressed toward the lack of use of interactivity. The TI-IN system was not used well; in fact, the typical presentation looked a great deal

like talking head instructional television. The panel reported over and over that the process doesn't seem to work well at all if you lecture and then have Q/A time. That seems to be forced interactivity.

Several of the criticisms seemed to bridge production and pedagogical concerns. For example, two panelists indicated that the moderator and her guests needed to talk as if they were talking to one person, not to an amorphous mass audience. To work effectively in instruction, television has to become a personal medium. More interaction seemed to be needed between talent; as it was, the presentation came off as too formal and stiff. One expert expressed a common concern very well: "Do you read lectures in class? I hope not. Then why do so here of all places?" The need for interweaving graphics and visuals with the presentations was mentioned under both production and pedagogy as well, as were a number of simple communicative concerns, such as a plea not to introduce people before we see them and emphasis for the need for graphic reinforcement of definitions.

Summary comments. A number of people who have viewed the *FLES* program have noted that excellent effort seems to have gone into developing the instructional overview, obtaining the guests, etc., but that once the project went into production, the seemingly careless and thoughtless translation of ideas into media messages undermined the efforts of the instructional planners. That seems to have

been reflected in the reactions of the participants in the Forsyth County class. They appreciated th content and the efforts required to develop the curriculum and they liked the highly qualified quests, but the production failed to hold their attention and interest. For distance learning to work effectively, one does not have to have "fancy" production; however, either inadequate production or inadequate instruction can ruin some extremely good intentions and fine instructional preparation.

BioPrep Teacher Institute

According to the information provided to us by the TI-IN United Star Network office, only four people had registered for the *BioPrep Teacher Institute*, and they were located at three different sites. Therefore, it was impossible to conduct site evaluations parsimoniously or to protect the anonymity of respondents during interviews. Thus the BioPrep evaluation is very incomplete, limited only to the evaluation by the panel of experts. That too was a bit of a problem, because the content of these lessons is extremely diverse and tends to cut across the expertise of many traditional classroom teachers. Although this may well be a substantial strength from the perspective of the student, it made evaluation extremely piecemeal.

Evaluation by panel of experts. The experts failed to indicate any *production* strengths in the earliest BioPrep productions. In fact, one experienced producer of classroom

television labeled the early efforts as "outtakes from TV 101." Numerous criticisms (46 in all) were offered by the panel, the most common of which were: poor audio quality, dark set, inconsistent lighting, wavering signal, objectives impossible to read--use graphics rather than Xerox copy, visually dull (one evaluator referred to the "plain vanilla" set), director needs to use close-ups more often, host needs to look at camera, the method of introduction makes the production seem "seat of the pants," the talent needs rehearsal, the visual aids used were very fuzzy, and the photos were so unclear as to be almost useless.

Pedagogically, the only compliment offered was that most of the guest experts seemed to be extremely knowledgeable. In terms of criticism, evaluators mentioned that the presentations frequently were choppy and rambling, that the exchanges between teacher and moderator were not always clear, that the range of topics was confusing, that integration and synthesis between units was needed, that more conversationality and spirit on the part of the experts were needed, that interaction needed to be incorporated into the instruction, that the moderator and guests had to develop effective strategies for eliciting interactions, and, most importantly, that coordination between presenters-producers-directors was absolutely necessary. One criticism came up over and over: that what might pass as good classroom teaching wasn't acceptable television teaching. In other words, the transition between instructional

objectives and pedagogy to interactive instructional television had not been accomplished.

Following a meeting between the *Bioprep* principals and the TI-IN United Star Network's primary evaluator, in which these criticisms were presented orally, the evaluation team examined two more recent *Bioprep Teacher Institute* productions. Although a number of problems remain, most associated with equipment ordered but yet to be installed, substantial improvements have been made. Many of the most blatant production errors have been rectified, and the regular talent appear to be far more comfortable with their task.

Summary comments. In terms of content, the BioPrep program appears to be much more complex than that of the other courses we examined. Because of this, it is absolutely necessary that instructional design elements be translated into effective audio-visual message design and production if this program is to work. If, as we anticipate, the principals have treated the summer institute as a learning laboratory and can profit from their mistakes, and if the head-end equipment can be put into place in time for fall productions, then the abundant promise that the TI-IN officers saw in this program can reach fruition.

Conclusions and Recommendations

It might be beneficial to note that the Principal Investigator approached this evaluation of the TI-IN process somewhat skeptically. I doubted that an open telephone line would provide enough potential for interactivity to overcome the obstacles of distance and depersonalization inherent in satellite delivered classroom television. As can be seen from our evaluation of the *Algebra II* and *Physical Science* courses, I was wrong, at least as far as direct student instruction is concerned. In many instances, good teachers used the media involved so effectively that they stimulated and challenged students who had been lost in traditional classroom education. Not only did this technology and this process permit the Waelders of this world to receive lessons that could not otherwise afford, in some instances it apparently ignited and revived a spark of interest in learning which classroom teaching had never managed to kindle. The process can work.

Yes, the process can work, but several ingredients are necessary for it to work well. Minimal requirements are effective technology, effective *television* teachers, effective production, effective interactivity, and effective facilitators. If any one of those requirements is missing, in the opinion of the evaluators, the process produces a mere shadow of its potential.

We're convinced that the barebones TI-IN technology of monitor, satellite links, and telephone is adequate. In terms of monitor and satellites, we saw no problems at any of our sites. The signal was beautiful and crystal clear. Not all of the telephones worked wonderfully, and the students have to learn to stay away from florescent lights and the monitor if they want to use the phones effectively. Other technology to help enhance interactivity would also be a plus, if it is trouble free. The interactive videodisc segments in the *Physical Science* course are excellent examples. In contrast, the computerized lapboards of the *Algebra II* class seem to be technology from hell, at least in their current iteration. But, overall, the technology clearly is already in place to permit a great deal of learning.

We saw several good television teachers, so we know that they exist. And we tried to extrapolate from the characteristics of Fritz Norman, David Marshall, and a few of the more competent guests on the teacher development programs to determine just what defines an effective TI-IN television teacher:

1. First, they have to have all of the elements of the effective classroom teacher. They have to be confident about their grasp of materials, enthusiastic about their subject matter, sensitive to issues of pacing,

responsive to their students, and experts in classroom management techniques.

2. Yes, we said experts in classroom management techniques. One of the most common mistakes we saw on the part of television teachers was failure to visualize classrooms and students and to respond to them personally as individuals and to exert efforts to control their inherent friskiness. Mr. Marshall's technique of using a file card on each student with a photograph attached seems valuable in this regard.

3. The effective TI-IN teacher must insist on *democratic interactivity*. That is, every classroom and every student must interact with the teacher, if not with each other, and no one classroom nor no one student can be permitted to dominate.

4. The teacher must be appropriately informal and friendly. Television is an affective medium. Even when teaching an abstract subject, like math, the instructor's personality must come through if the student is to be maximally involved and motivated.

5. To be effective, the teacher must use extremely diverse forms of positive feedback. Verbal diversity, visual diversity, special

effects, whatever, the student has to receive sufficient feedback to maintain interest and diverse enough feedback to thwart habituation. Humor, even silly humor, can be an effective feedback device when used appropriately. The feedback also has to be non-phony. When the teacher's face is blown up larger than life six feet in front of the student, every exaggeration is multiplied. So the teacher has to ask the sorts of questions that permit correct answers and follow those answers with appropriate and diverse forms of encouraging feedback.

6. The teacher has to like audio-visual displays and be comfortable with using them. He or she has to work with the producer and director to ensure that visually effective graphics are prepared and inserted throughout the presentation whenever abstract or complex material is taught. The typical instructor will be teaching what is essentially linear content via a nonlinear medium. Graphics and specially produced video material can be just the right device for effectively translating the content to the language of the medium.

7. The teacher must be conversational. As was mentioned earlier, the teacher has to talk to

students as if addressing each one individually. Moreover, the TI-IN teacher can't lecture to students and hold their attention. After all, the teacher will be talking to someone who is sitting within your his or her normal conversational distance.

8. The telephone is the magic link, and the effective TI-IN teacher will have to develop strategies to elicit feedback directly. What seems to work best is to first call on sites and individuals directly, beginning with friendly, nonthreatening, highly directive questions. This works particularly well during the earliest portions of the class, perhaps in the review period. Then, once the students are "on line," so to speak, more generic and difficult questions can be asked, and typically they will be answered. Then, once the ball is rolling, stand back. After all, the telephone is the preferred medium of communication among teenagers. This is what they do for fun.

Once you manage to get an effective television teacher, good instructional design and television production are also required. We did not see many problems with instructional design, but we would like to add a word about production, where many problems were noted. Effective TI-IN television production doesn't have to be fancy. Neither the *Algebra II*

nor the *Physical Science* projects featured network television glitz nor slickness. But what is required is production that not only does not get in the way of learning but which *enhances* the teacher's presentation. Because you are teaching to the video generation, your productions have to be virtually error free. To young people, production glitches tend to be associated with inferiority. Moreover, not to utilize the visual, auditory, or motion potential of the medium to the fullest extent practical is to make a lesson less than it can be. All of those elements help capture the attention of participants and make it easier for them to learn. Television is a demonstration medium. A little advance planning and production permits one to present visual demonstrations which can greatly enhance the student's learning potential. The need for quality in production is not a need for quality for quality's sake; it is quality for the sake of learning.

Effective interaction is also essential ingredient for optimal learning via the TI-IN process. Recently I completed a series of four studies which focused on interactivity and quasi-interactivity as factors in televised instruction. In each study, effective interactivity facilitated student attention, motivation, enjoyment, and information acquisition. Good interactivity doesn't just happen, even when the TI-IN technology is readily available. It comes from developing and utilizing effective strategies and planning. Effective teachers and

producers must program for interactivity; they must demand interactivity; and it must be spaced frequently throughout the program.

Finally, perhaps the most important single "ingredient" necessary for success that we saw during our on-site evaluations was the facilitator. We saw a great facilitator--Valerie Harris--make what could have been a difficult class into an extraordinary class, via concern, sensitivity, extra effort, high standards, and tenacity. We suggest that each TI-IN United Star Network partner expend extra efforts in selecting, educating, and motivating your facilitators. From what we have seen, that will be one of the best investments you can make.

Rest assured that the process can work. Good luck!

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TI-IN United Star Network
EVALUATION REPORT
1989 - 1990
Volume I:
Introduction and Overview

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Table of Contents

I. Introduction and Overview

The TI-IN United Star Network was established in April 1988 as a distance learning programming and distribution entity by a consortium of nine educational partners: (1) TI-IN Network, Inc., a Texas-based satellite tele-education corporation; (2) California State University-Chico; (3) the Texas Education Service Center, Region 20; (4) the Illinois State Board of Education; (5) Mississippi State University; (6) the North Carolina Department of Public Instruction; (7) the Texas Education Agency; (8) the University of Alabama; and (9) Western Illinois University. This consortium began with the latest concepts of distance learning and added interactive telecommunications technology to form an interactive educational network designed to meet the challenge of dwindling school budgets and a shortage of qualified teachers in math, science, and foreign language courses, especially in rural geographic areas. Supported by a Star Schools grant from the United States Department of Education, the target population of the TI-IN United Star Network was students and teachers in economically disadvantaged areas of the United States.

For two years the TI-IN United Star Network delivered via satellite high school credit and career opportunity courses for students, as well as staff development and college credit courses for administrators and teachers. Technically, the TI-IN Network utilized the GTE Spacenet Satellite (KU-Band) for delivery to satellite-receiving

dishes of subscribing affiliates. Each receive site was equipped with an audio-video unit which was self-contained and housed in a locking cabinet situated on a wheeled cart. The A-V units contained a 19" television monitor, a VCR for recording missed classes, a dot matrix printer connected to the originating studio's computer system, and a cordless telephone handset (pre-programmed to call the originating studio through toll-free telephone lines). These technologies enabled students to maintain visual contact with the teacher, as well as to hear questions from students at all other sites, during live telecasts of the course. Students were also encouraged to use land lines to reach their teachers during regularly-scheduled office hours.

During FY '88 and '89, the TI-IN United Star Network partners produced five high school credit courses: a) **ALGEBRA II**, b) **ANATOMY & PHYSIOLOGY**, c) **JAPANESE I**, d) **PHYSICAL SCIENCE**, and e) **SPANISH III**; two professional development courses: **PARTNERS IN PROFESSIONAL GROWTH** and **FOREIGN LANGUAGE IN THE ELEMENTARY SCHOOL**; and the **TI-IN United Star Network/TERC (TECHNICAL EDUCATION RESEARCH CENTERS)** Star Schools Project. TI-IN United Star Network subscribers could also receive several student enrichment programs from TI-IN, which offered information on a variety of general topics. Finally, the subscribers had the opportunity to register for staff development (in-service) workshops, test and review courses (PSAT, SAT, and ACT), and basic skill booster courses (remedial math and English).

As a condition for receiving TI-IN United Star Network courses, each subscribing school had to assign a classroom facilitator to each course to which they subscribed. A certified facilitator was required for science courses that had regular labs (i.e., **PHYSICAL SCIENCE** and **ANATOMY & PHYSIOLOGY**), unless otherwise specified by individual state board of education requirements.

In evaluating the programming and processes of the TI-IN United Star Network, the evaluation team focused attention on all of the cogs in the TI-IN United Star Network wheel: teachers, facilitators, students, technical equipment, courses, and school administrators. The following describes the organizational structures of the evaluation reports.

II. Organization of Evaluation Reports

The Evaluation Report is contained in three volumes: Volume I presents an Executive Summary and an overview of the general findings of the evaluation, including a summary of qualitative assessments and quantitative data. The qualitative information was gathered during 16 site visits conducted nationwide (from California in the West, to North Carolina in the East; from Illinois in the North, to Mississippi and Alabama in the South). Included also was a Bureau of Indian Affairs site in New Mexico. As can be seen from the enclosed chart, which lists the site visits for each course, the site visits span the TI-IN United Star Network's curriculum as well as the geographic boundaries of the project. The conclusions that are presented in this overview volume are based on objective as well as subjective criteria drawn from diverse evaluation sources--from: (1) personal observations made during site visits; (2) in-depth interviews with administrators, facilitators, and students; (3) questionnaires administered to course teachers, school administrators, class facilitators, and students; and (4) custom-designed information-acquisition tests administered to students in the **ANATOMY & PHYSIOLOGY** and **PHYSICAL SCIENCE** classes.

Volume II contains the first set of technical reports: accounts of the 16 site visits, with our observations and appraisals reported in considerable detail.

	SITE VISIT 1	SITE VISIT 2	SITE VISIT 3	SITE VISIT 4
ANATOMY AND PHYSIOLOGY	Gordo High School Gordo, AL 6 March 90	Choctaw County H.S. Butler, AL 6 April 90	Beecher City Community Jr/Sr H.S. Beecher City, IL 20 April 90	Jemez Valley High School Jemez Pueblo, NM 27 April 90
JAPANESE I	Louisville High School Louisville, MS 28 March 90	Hale County High School Moundville, AL 3 April 90	Choctaw County H.S. Butler, AL 6 April 90	
PHYSICAL SCIENCE	Louisville High School Louisville, MS 28 March 90	To'Hajiilee-He H.S. Laguna, NM 26 April 90	Jemez Valley High School Jemez Pueblo, NM 27 April 90	
SPANISH III	Northview High School Dothan, AL 28 March 90	Beecher City Community Jr/Sr H.S. Beecher City, IL 20 April 90		
TECHNICAL EDUCATION RESEARCH CENTERS (TERC)	St. Anne Community High School St. Anne, IL 7 May 90	Huntland Schools Huntland, TN 15 May 90		
PARTNERS IN PROFES-SIONAL GROWTH	Flagler Public Schools Flagler, CO 7 April 90			
FOREIGN LANGUAGE IN THE ELEMENTARY SCHOOL (FLES)	Buncombe County Schools Asheville, NC 1 May 90			

Volume III, the second of the technical reports, contains the results from the analyses of the quantitative data. These data include normative information on the TI-IN United Star Network's courses and enrollments broken down in several ways. The results of the statistical analyses of the questionnaire evaluations are included. And finally, the questionnaires, complete with the resulting mean scores for each item, are included as appendices. Copies of the computer printouts containing the statistical analyses are available at cost from the Principal Investigator.

The TI-IN United Star Network evaluation process consisted of two stages: (1) site visits by an evaluation team, during which two to five evaluators attended and observed the actual TI-IN classes; interviewed students, facilitators, and administrators; and submitted written reports of their findings (Volume II); and (2) surveys conducted at the conclusion of the TI-IN United Star Network project, questionnaires specially prepared for different target audiences: students, teachers, facilitators, and administrators. The overarching purpose was to determine whether or not the program was effective, to find out where improvements were warranted, and to detect any problems inherent in the tele-education technology.

The findings were revealing and, as a rule, quite positive. Moreover, a high degree of concordance was found between the observations reported in the site visits (Volume II) and the data from the 398 questionnaire evaluations that

were returned (a 70% response rate; Volume III). The following is a summary of the findings and conclusions of the evaluation team for the TI-IN United Star Network. Results on teachers, facilitators, student motivation, and equipment are summarized.

III. Highlights from TI-IN United Star Network Evaluations

Evaluation of TI-IN Teachers

- Students reported learning as much or more from their television teachers as from their resident classroom teachers.
- Students thought the television teachers were in touch with their needs and believed that their teachers had at least a moderate level of empathy with them.
- Students reported that their TI-IN teachers were at least as competent as their classroom teachers.
- Students perceived the TI-IN teachers to be extremely interested in the instructional topic, to have exceptionally high levels of commitment, and to be experts in their teaching areas.
- Administrators rated the teachers as equivalent in quality to the teachers at their schools.

Evaluation of Facilitators

- Students reported being very pleased with the class facilitators selected to mediate the TI-IN courses.
- Students rated TI-IN facilitators from "good" to "great."
- On-site evaluators perceived that the majority of facilitators had developed a rapport with the class and a nurturing environment.

- The more the students liked their facilitators and looked forward to coming to class, the better they did in the class.
- The more positive the facilitators felt about their students' motivation and attentiveness and the more satisfied they thought the students were with the equipment, the higher the grades were likely to be.
- Students' ratings of the teachers as more expert than the facilitators did not seem to affect the students' general evaluation of their facilitator or teacher.
- A serious facilitator and a lack of knowledge of class standing contributed to higher course grades.
- Facilitators felt that they were instrumental in the students' success and played a crucial role as a supportive link between the TI-IN teacher and the students.
- Facilitators rated classroom interaction and working closely with students as enjoyable, and reported that their confidence levels had increased by the end of the program.

Evaluation of Student Motivation

- Facilitators interviewed indicated that the majority of students appeared to be highly motivated to learn and noted that the students were intrigued by the tele-education classes.

- Facilitator questionnaires indicated that they perceived room for improvement in the area of student achievement and attentiveness.
- Teachers and administrators rated the students as more highly motivated than students in traditional classes.
- Students considered their own motivation to be vital to their success in the TI-IN program.
- The higher the students' motivational levels, and the more they desired to continue with a post-secondary education, the higher their grades in the course.

Equipment Reports

- Students indicated that room for improvement exists in the area of integration of the handset and the interactivity that it represents.
- Facilitators reported that the fewer the number of technical problems, the higher the students' grades tended to be.
- Facilitators tended to be satisfied with the performance of the equipment, felt comfortable operating it, and felt they had adequate training to use it.
- Facilitators and administrators noted that most of the teachers could have used the printers more effectively.

- Administrators reported technical difficulties on an average of "between three and ten times" per term.

Evaluations by Administrators

- Most administrators praised the TI-IN program and thought that TI-IN allowed them to offer classes that they would otherwise have been unable to provide.
- Most administrators considered the program a useful and integral part of their academic curriculum and would like to continue the program.

IV. Areas for Improvement

By and large, our evaluations of the TI-IN United Star Network programs and processes yield extremely positive results. However, as with any educational enterprise, room for improvement exists. Those areas of the TI-IN United Star Network Program that seem in need of improvement are outlined below. They are followed by a list of suggestions to strengthen the program.

Perceived weaknesses in the TI-IN United Star Network:

- Some facilitators and administrators complained that the TI-IN catalog course descriptions did not clearly state course objectives, goals, or topics to be covered.
- Several administrators reported a lack of effective communication between TI-IN and school administrators.
- Slow and sometimes inefficient technical assistance was a persistent problem.
- Purported lack of distribution of promotional materials for subscribers' use impaired local efforts at promoting TI-IN courses.
- Several facilitators and administrators complained that all courses did not start at scheduled times.
- Perhaps the most persistent problem was conflicting schedules between TI-IN and subscribing schools.

- Another recurring complaint was an insufficient number of phone lines accessing the originating course studio, frustrating students in their attempts to call the teacher during class.
- Teacher grading scales did not always correspond with school grading scales.

Suggestions to improve effectiveness/efficiency of the TI-IN United Star Network.

- Provide detailed course syllabi to schools prior to start of the course.
- Emphasize facilitator training sessions and require facilitators to attend.
- Assign a liaison between the teacher and production support personnel.
- Produce introductory video about teacher to personalize the class.
- Send course materials via electronic mail rather than U.S. Mail.
- Continuously update normative records on non-Star schools as well as Star schools.
- Maintain current listings of principals, facilitators, and coordinators, as well as students, by sites.
- Organize district, state-wide, or regional meetings of facilitators and/or administrators to discuss problems and solutions.

V. Factors Contributing to TI-IN's Success

After reviewing the technical data and the information gleaned from site visits, it seems that certain factors contributed to the success of the TI-IN United Star Network telecourses. The first list contains those elements that should be present for distance learning courses in general. The second list is primarily for distance learning teacher and staff professional development programs, and the third is reserved for distance learning student credit courses.

Factors essential to the success of distance learning courses, such as those of the TI-IN United Star Network:

Teacher-Related Factors

- Personalized course presentations
- Encouragement of student participation by requesting that specific sites or even specific students call in
- Use of compelling course-related media presentations
- Thorough review of materials to be aired
- Course objectives developed and followed closely
- Organized and well-prepared presentations
- Presentation pace adjusted according to difficulty of course material
- Prompt return of graded tests and assignments

Facilitator-Related Factors

- Attendance at training sessions
- A positive attitude

- Encouragement of student-teacher interaction
- Support and encouragement of students' progress
- Possession and utilization of effective classroom management skills
- Preparation of course materials prior to each class

School Administrator-Related Factors

- Involvement in all aspects of the distance learning program
- Support to facilitators, faculty, and distance learning program
- Communication of the importance of distance learning program to all faculty, staff and students
- Proper screening of students

Program-Related Factors

- Prompt distribution of tapes to schools for missed classes
- Airing of classes at scheduled time
- Detailed and organized course materials
- Aesthetically-pleasing studio sets

Factors essential to the success of the distance learning teacher and staff professional development programs, such as TI-IN United Star Network's **PARTNERS IN PROFESSIONAL GROWTH** *and* **FOREIGN LANGUAGE IN THE ELEMENTARY SCHOOL** *courses:*

Teacher-Related Factors

- Solutions to problems discussed in class

Facilitator-Related Factors

- Authoritative, non-class member should serve as facilitator

Student-Related Factors

- Pairing of experienced teachers (peer coaches) with beginning teachers to provide networking is useful
- Nurturing peers through course activities
- Obviously high levels of motivation and excellent communication skills serve students well

Factors essential to the success of distance-learning courses, such as those of the TI-IN United Star Network's high school student credit courses:

Teacher-Related Factors

- A positive and motivating personality
- Thorough discussion and review of grading system with facilitators
- Emphasis and reemphasis of students' participation during entire school year

Facilitator-Related Factors

- Knowledge of course content
- Rapport with school administrators and faculty
- Not being a student in the class

School Administrator-Related Factors

- Integration of distance learning courses into existing class schedule

- Encouragement of faculty and staff support of distance learning program

VI. How to Optimize the Distance Learning Experience

Throughout the evaluation process, we have attempted to determine ways that interactive distance learning processes can be used most effectively. Our observations and the evidence indicate several critical elements.

(1) **An energetic and organized facilitator is critical to the effectiveness of the program.** A conscientious facilitator is essential for classroom management and for creating the proper learning environment. The facilitator's attitude and rapport with the students affected student attitudes.

(2) **Instructors must be prepared and enthusiastic about the content to enhance the students' appreciation of the course.** Charisma, a sense of humor and a pleasant voice were qualities the students praised again and again.

(3) **Administrator support, including the positive attitude of administrators and/or faculty, is vital to the success of the program.** Good communication between TI-IN and the administrators--and so on down the line--typically resulted in the administrators' support for distance learning. In turn, good communication between administration and faculty seemed to help alleviate insecurities faculty might have about being replaced by TI-IN. Moreover, support from a school counselor or a parent group aided in building student morale in more than one instance.

(4) **Attentive and motivated students appreciated their distance learning courses the most.** Generally, students agreed that TI-IN classes were more interesting and challenging than traditional classes.

(5) **TI-IN telecast schedules need to be coordinated with school schedules and adhered to.** Changing telecast times just prior to the start of school should be avoided at all cost. Classes must run exactly on schedule or students miss out on telecast information.

(6) **The selection of a suitable classroom is an important step in insuring that students receive the maximum benefit from distance learning classes.** A healthy environment includes adequate space, good audio quality, seating that allows a good view of the monitor, and controlled behavior of the students.

(7) **Teacher/Student interaction plays an important role in building working relationships among students, between students and teachers/facilitators, as well as between students and technology.** It appears that the ideal distance learning circumstance occurs when these relationships are healthy.

(8) **Effective distance learning requires good, although not elaborate, production.** Production efforts need to be well-planned, organized, and take full advantage of the vast technologies available.

(9) **Ancillary materials (i.e., workbooks, homework, assignments, etc.) appear to play an important support role**

in reinforcing the content of lectures. Courses which featured such materials seemed to consolidate the students' efforts.

(10) **Hands-on involvement enhances learning.** Students seemed to benefit more from those courses that entailed the added involvement of labs, research projects, demonstrations, etc.

(11) **Pacing is extremely critical in distance learning.** Instructors should ensure that course pace is in line with the difficulty of the material being presented.

(12) **Students expect prompt turnaround in homework and grading consistent with their school courses.** Delays in the return of graded materials and feedback from instructors should be avoided.

(13) **Equipment failure is extremely disruptive in distance learning.** Repair of equipment should be contracted to qualified, reliable personnel.

TI-IN United Star Network
EVALUATION REPORT
1989 - 1990
Volume II:
Technical Reports: SITE VISITS

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Site Visit Reports

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E. TECHNICAL EDUCATION RESEARCH CENTERS

ACKNOWLEDGEMENTS

Never have we sat in so many principals' offices. It was our worst juvenile nightmare come to life. Fortunately, habituation finally accomplished what no rational cognitive process could ever do: It enabled us to overcome our thoroughly entrenched fears of being sent "to the office." We talked to some great ones, and to some great teachers too, who reaffirmed our faith in the American public educational system; and we met a few of each who made us understand the crisis in confidence many profess to have over the state of public education today.

During the course of the 16 site visits we conducted as a part of the evaluation of the 1989-1990 TI-IN United Star Network's programs, we traveled many miles, slept in numerous strange motels, ate the same cardboard food from California to North Carolina, and squeezed into more student desks than Carter has pills. Why did we expend so much effort to visit a relatively small number of classes? The reason is simple. Although we were confident that via the administration of questionnaires of various sorts, we would get a good indication of how well the principals, teachers, facilitators, and students thought the TI-IN United Star Network programs were working, we knew that the images that would result from analyses of these quantitative data would be relatively *cool*. The purpose of our several site visits

was to provide some depth and feeling to these essential but heartless images.

We are glad we went. And, if we had it to do over again, we would make even more site visits. Only by sitting in these remote Star Schools classrooms, only by observing the teachers first-hand as they taught, only by seeing the students interact with their distance learning teachers and facilitators, and only by talking face to face with a sizeable sample of participants in this program were we able to really understand some of the successes and some of the barriers to achievement involved in this bold experiment in distance learning. The quantitative analyses were more useful in teaching us the "whos, whats, and wheres"; the site visits were absolutely necessary to enable us to understand the "whys' and the "hows."

In **Volume II: Technical Reports: SITE VISITS**, we present the detailed reports of our field evaluations. No attempt is made at integration or of providing an overall summary. That is a part of the **SUMMARY REPORT**. We thought that it would be more appropriate to keep this report free from summation at this point in order to force the reader into examining the same sorts of details that were a part of our site visits.

The authors of this report wish to thank several other people that helped us during the evaluation process. First, fellow evaluators Scott Davenport, Lisa Madsen, John Owens, and Karla Schweitzer accompanied us on several visits, and

we thank them very much for their efforts and expertise. Jewel Kemp administered the financial side of the grant that supported our evaluation, and she was marvelous in taking pockets full of damp and crumbled receipts and bringing some order to our jumbled bookkeeping. And we cannot possibly thank TI-IN's Mae Beth Hooter enough. She is a very special person who helped us more times and in more ways than she wants to remember. Thanks, team.

Jennings Bryant

Curtis Love

Mary Maxwell

Steve Rockwell

Lisa Scott

I. PROFESSIONAL DEVELOPMENT PROGRAMS

Site Visits

PARTNERS IN PROFESSIONAL GROWTH

Chico, CA, and Flagler, CO

April 5-8, 1990

California State University, Chico

Site evaluators Dr. Jennings Bryant and Curtis Love visited Chico, California on Thursday, April 5, 1990, to meet with Dr. Victoria Bernhardt, Project Director, and Geraldine Flaherty, Project Instructor/Trainer, for **PARTNERS IN PROFESSIONAL GROWTH (PARTNERS)**. This visit was in preparation for a site visit to Flagler, CO, to evaluate this program. Much of the **PARTNERS** programming, which is very different in focus and purpose from most of the TI-IN courses we had evaluated, has been based on principles derived from a highly-touted **Introduction for Beginning Teachers** (IBT) program developed at California State University, Chico. Although the evaluation team had watched videotapes of **PARTNERS** seminars and had reviewed printed materials for the course, we were not confident that we understood the program well enough to evaluate it competently. Therefore, we arranged a visit to Chico to discuss the **IBT** and **PARTNERS** programs with key personnel.

Our visit with Dr. Bernhardt and Ms. Flaherty was extremely useful and most pleasant. They provided us with a painless "cram course" which enabled us to understand **PARTNERS** well enough to get the most from our subsequent

site visit to Flagler, CO. A small sampling of the interesting and useful background information we gleaned from our discussions at Chico includes:

- It is common to have only one IBT viewing site per county or even multi-county region. This requires many teachers to drive a considerable distance to participate. A goal for **PARTNERS** was to provide each site with its own equipment, reduce driving, and make this distance learning experience more accessible. (As we were later to discover firsthand, the roads in some of the rural areas served by **PARTNERS** and IBT are not exactly thoroughfares either.)
- Interactivity was stressed as an expectation for the participants from the beginning of the program. In every lesson, student interaction with the instructor was expected, even demanded, throughout the various portions of the seminar.
- Peer coaches (experienced teachers) must attend all classes with their partner/(s) (beginning teachers). However, beginning teachers were not required to attend the training sessions designed to teach the experienced teachers how to be on-site coaches. Some beginning teachers did attend these sessions.
- Dr. Bernhardt had already conducted some evaluations of the program. Evaluation scores had been higher

from locations where Ms. Flaherty and Dr. Bernhardt had made personal visits.

- The program was originally designed to include a facilitator at each site. In the **IBT** program, graduate students had been used to travel to the sites and act as facilitators. However, this feature had not been incorporated into the 1989-1990 TI-IN **PARTNERS** program. At some sites, the school principal, superintendent, or another willing program participant fulfilled the function of program facilitator.
- Ms. Flaherty and Dr. Bernhardt had actively recruited participants for the 1989-90 program. They had also traveled extensively to visit the **PARTNERS** sites.
- Local support from the school district and community opinion leaders seems to be essential for the success of the **PARTNERS** program.

Overview of **PARTNERS** in Professional Growth. Following the presentation of background information, the discussion turned to the basic elements of the **PARTNERS** program. Of particular interest to the evaluators was that the TI-IN United Star Network telecourse, albeit perhaps the heart of **PARTNERS**, is only one of several ingredients that contribute to this course. The five essential components are:

(1) Identification and pairing of suitable partners. The partnerships are dyads composed of a beginning

teacher paired with an experienced teacher from the same grade level and content area.

(2) Training of the experienced teacher in peer coaching techniques, in techniques of identifying beginning teacher needs, in observational methodologies, and in communication skills. Three 4 1/2 hour sessions (August 26, 1989; September 9, 1989; January 6, 1990) of satellite-delivered instruction were devoted to these topics. Following the early portion of this training, the experienced teacher becomes the peer coach.

(3) Presentation of topical seminars. Counting the three peer coaching sessions described above, a total of eleven satellite-delivered interactive seminars were presented on nine different topics. These TI-IN seminars were:

- Coaching Teachers to Higher Levels of Effectiveness
- Classroom Management: Creating a Positive Classroom Environment
- Developing and Implementing a Discipline Plan
- Classroom Management: Understanding Your Power and How to Use It
- Time Management: Balancing Personal and Professional Commitments
- Student Evaluation and Motivation
- Teaching Students Who are at Risk

- Conferencing Skills with Parents and Colleagues
- Teacher as Instructional Leader

(4) Development of action research plans. The peer coach and beginning teacher together develop plans that enable the beginning teacher to implement the things they learn in the topical seminar. (In some disciplines, this would be referred to as *practicum* preparation.) Dr. Bernhardt shared one team's action plan for a lesson with us. We reviewed other action plans during the Flagler site visit.

(5) Implementation of the action plans. The beginning teachers actually carry out their action plans under the supervision of their peer coaches. Unfortunately, the evaluation team was unable to observe the implementation stage of this process.

The evaluation team also reviewed the attractive and informative **PARTNERS IN PROFESSIONAL GROWTH** brochure, examined maps which clearly indicated just how remote some of the **IBT** and **PARTNERS** sites are, and reviewed many other elements of the course. Then Dr. Bernhardt and Ms. Flaherty escorted us to the production facilities from which the seminars are produced and transmitted. There we met with some of the production personnel for this project. We wish to thank the quality folks at Chico for their courteous and thoughtful care. We really enjoyed our visit.

Side Trip to Lake County, CA. Our curiosity piqued, we cancelled a visit to the Survey Research Center in Berkley in favor of a drive through Lake County, CA, an area served by the **PARTNERS** program. It turned out to be a scenic drive through a remote region with winding secondary roads. It was hard for us to believe we were only 100 miles or so from San Francisco. We can personally vouch for the fact that portions of northern California can truly be classified as "rural."

Flagler, CO.

Site evaluators Dr. Jennings Bryant and Curtis Love arrived at Flagler Public Schools at 7:30 a.m. on Saturday, April 7, 1990, after a two hour early morning drive from Denver. The village of Flagler (population 550) is little more than a crossroad community off exit 395 along I-70 in a remote and relatively arid high plains region of eastern Colorado. During our pre-dawn trip from Denver, we saw more wild game (mostly deer) than automobiles. Flagler is quite small. In fact, we drove every street in town (including the dirt ones) in less than 10 minutes. From what we could observe, other than a few service facilities (e.g., a "Loaf and Jug Market"), the business of Flagler and its environs is agriculture. Indeed, agribusiness seems to be the principal source of income of the vast Kit Carson County (2,124 square miles; 7,599 population; 3.57 residents per square mile), in which the Arriba-Flagler Consolidated School District No. 20 is located. The building housing the

Flagler Public Schools was built in 1952, but it has been well cared for and must have been renovated fairly recently, because it was in excellent condition and as neat as a pin. The school building seems to double as a community center, as at least three different non-school functions were going on there on the day of our visit. We talked to several residents not associated with our site visit, and all were very pleased and proud of their schools. Upon our arrival at the school, we met immediately with Mark Ricken, Superintendent of the school system. Mr. Ricken was personable and extremely professional. He spoke freely with us about the **PARTNERS IN PROFESSIONAL GROWTH** program, the Flagler community, and the teaching environment in rural Colorado. Flagler Public Schools serves 240 students from K to 12th grade in a geographic area the radius of which extends 25 miles north, 30 miles south, 11 miles east, and 26 miles west of the school. There is only one minority student living within the entire school district, a Native American. Flagler Public Schools has the largest payroll of any institution in Flagler. Mr. Ricken acts independently as the facilitator for the **PARTNERS** program and sees it as highly beneficial to both beginning and experienced teachers. Mr. Ricken is also enthusiastic about the TI-IN Network programs for students--especially for gifted students. Mr. Ricken is very supportive of the **PARTNERS** program and professed a commitment to personally try to generate interest in funding the program next year. Prior

to receiving information about **PARTNERS**, he and an experienced teacher within the school (Peer Coach[1]) had planned to implement a similar program on their own. Mr. Ricken had also been involved in promoting **PARTNERS** at a convention with project director Victoria Bernhardt.

Nine teachers participate in the Flagler program, seven of whom are from Mr. Ricken's district. The other two are from Deer Trail, a "nearby" community (more than 1/2 hour distant). Seven members were in attendance and the session was videotaped for the two who could not attend. Mr. Ricken noted that the interactive nature of **PARTNERS** is important for its success; he also emphasized the essential aspect of support from school administration. The Deer Trail teachers also emphasized the latter element, noting that they had <u>not</u> received such support. Mr. Ricken also noted a pragmatic dimension of the program; he thinks **PARTNERS** can help lighten the personnel work load of principals and superintendents.

As air-time approached, we adjourned to the school library where the equipment was set up. The library was a large, L-shaped room with windows on one side. The lighting was poor by most standards, but no mention of it was made by the teachers. Four folding tables were positioned in a loose semi-circle in front of the A-V cart and monitor. The television unit was about twelve feet in front of the tables, perhaps 3-5 feet too far away for ease in reading graphics. In fact, on a couple of occasions, the students

did get up to walk closer to the monitor to examine something more carefully.

Some teachers were present on our arrival and others arrived later, by air time. We were introduced to everyone and all were pleasant. Several brought snacks to eat during breaks (delicious, we might add). The topic for the day was "Conferencing Skills with Parents and Colleagues." **PARTNERS** instructor Geraldine Flaherty began the session with a few pleasantries and then outlined the lesson plan to be followed that day; focus on parents, purposes of conferencing, five stages of parent/teacher conferencing, and closing remarks. Both the reception and volume level were poor. We were told that both problems were unusual.

All participants were seated at the work tables by the beginning of the telecourse, and they were obviously ready for "work," with workbooks and supplies at hand. Some light banter and quiet conversation continued throughout Ms. Flaherty's announcements, but this did not in any way appear to be discourteous or disruptive.

Notes on Program and Process. The first exercise dealt with reflections on the parent/teacher conference. Participants were instructed to take one minute to jot down the purpose of parent/teacher conferences and the outcome that should be achieved. Each site was requested to call in. Flagler participants were attentive and completed the assignment as directed. Difficulty was experienced when attempting to call in. [It should be noted that the Mt.

Aire site was unable to get through for about forty-five minutes; and Lake County never was able to call in.] Additional questions posed by Ms. Flaherty for discussion were: Who is present during the parent/teacher conference? How long is the typical parent/teacher conference? Additional time was allotted for discussion within the group. Flagler participants discussed these questions and did not appear to stray from the topic at hand.

When Ms. Flaherty resumed her telecast lesson after an appropriate discussion interval, she provided the following research evidence. The average parent/teacher conference takes place within 12 minutes and is usually conducted with the student's mother. The primary goal is to discuss the student's academic progress. The parent/teacher conference is reported by parents to be the number one public relations tool for a school. Ms. Flaherty used research evidence several times during the session, but she did not provide the references from where this research evidence derived, a point of minor frustration for one eager student.

Class continued with participants listing the three most common reasons why parents will not attend parent/teacher conferences. Sites were encouraged to call in with their lists. Among the reasons given were: too busy, forgot, and parent apathy. Discussion continued in class when other sites were calling in. It did not appear that the Flagler participants were being rude, rather that they were engrossed in the subject matter. This would have

been a time when an on-site facilitator might have intervened and gently directed attention back to the monitor, because the participants did appear to miss some key points presented by other sites. [At a later time we will discuss some aspects of "distance learning cultures" which seem to make a difference in learning morale, etc.]

The next exercise dealt with the feelings of parents when they arrive for conferencing. The use of a film strip was incorporated to demonstrate how body language, tonality, and attitude can all affect the success of the conference. This was the first time a film strip had been attempted during the **PARTNERS** program. The audio and visual quality were both poor, and phone communications continued to be troublesome. Sites called in with comments on how to improve the film demonstration. [It should be noted that Dr. Bernhardt and Ms. Flaherty had told us earlier that they were worried about this particular A-V use but thought it was worth the gamble. We're not sure that the gamble paid off.]

Fifty-five minutes into the session, the workbooks were used for the first time. Participants were instructed to highlight parts of the text that applied to them and call in with class comments. We did not have workbooks, so it was difficult to follow along. We also had difficulty hearing because one participant was talking in class. Mark at Mt. Aire said they have a 50-60% attendance rate for parent/teacher conferences in their school. Pam from

Flagler suggested an open arena type forum so all parents and teachers would be together. Mr. Ricken added that they would discuss it further in the next staff meeting. Lake County still had transmission problems and we could not hear the response from Syracuse due to in-class chatter. Comments were also made about the size of seats provided for parents when visiting and also that the school environment may negatively affect parents. John from Mt. Aire suggested using "sandwich psychology"--or cushioning negative comments between two positive ones.

Beginning Teacher Interview #1. At this time the pace of instruction slowed down and the evaluators began on-site interviews. Our first interview was Beginning Teacher[1], a white male in his early 40's. We had some previous discussions about Beginning Teacher[1] with Mr. Ricken as well as with Ms. Flaherty and Dr. Bernhardt. Beginning Teacher[1] was a farmer who had lost his farm and gone back to school for a teaching degree. He has experienced difficulty in adjusting to the academic life, and Mr. Ricken had intimated that he may not be around next year. From our discussions with Beginning Teacher[1], it seems that he thinks that his problems stem from failing a student for poor academic performance--a student who happened to be a popular school athlete. Apparently there was quite a commotion within the community about this matter. Regardless, we found Beginning Teacher[1] to be an introverted person, but one who definitely

was unsure of himself and his situation. The following is a brief synopsis of our interview.

Beginning Teacher[1] is a partner who is in his second year of teaching both math and computer science. He was encouraged by his superintendent (Mr. Ricken) to take the **PARTNERS** course and reported that it serves his needs fairly well. He noted that television reception is usually good except when there are storms or sun spots, and he rates production quality as excellent (well organized). Beginning Teacher[1] does not like the echo in the phone transmission and does not like or use the handset very much. All teachers at the site have talked to Ms. Flaherty, usually monthly, and the Flagler teachers occasionally initiate the calls.

Beginning Teacher[1] has no comment on the performance of Victoria Bernhardt because he doesn't see her much. He feels that the biggest administrative weakness is the time delay in getting back assignments that are turned in. He says he has only received one or two back and would like to have additional feedback from the instructor. He is also concerned that he doesn't know if he will receive a grade for his participation. If he were getting a grade, he would try harder. Beginning Teacher[1] does feel that the program tries to make the exercises applicable to the beginning teacher's situation. However, he feels that the instruction is too oriented toward college-level educational theory. He

suggests that more emphasis be placed on everyday problems faced in teaching.

Beginning Teacher[1] commented that Ms. Flaherty's main strength is that she is open to new ideas and can apply them to real life situations. However, he finds her strict adherence to a routine and the structure of the class to be a weakness. Beginning Teacher[1] added that she is always positive, has a good attitude, and is attractive, but he finds that she needs more recent teaching experience to draw upon to make class more effective.

Beginning Teacher[1] concluded that he would not be content with the **PARTNERS** program if he had to pay for it "out-of-pocket" and that the value of the course is enhanced if the coach/partner relationship is strong. He suggests that improvements could be made by the school systems allotting 30 minutes each day for the beginning teachers and peer coaches to get together. Also, the partners should develop better communication between the other sites to facilitate the exchange of ideas.

Beginning Teacher Interview #2. Beginning Teacher[2], a white female, age 24, has had about three years teaching experience. She teaches Language Arts in grades 9-12. She decided to participate in the program because of difficulties she experienced in the first two years of teaching. She commented that the lesson plans she was required to complete at work were difficult and that this aspect of her job had not been covered in her college

education. However, she feels that as she gains experience it becomes easier. She also remarked that the brochure was enticing and helped pin-point what to expect.

Beginning Teacher[2] does not like the reception of the telephone and complains that she cannot understand the comments made by other sites. She uses the handset about 3-4 times each class period but has never spoken directly to another site. She states that the Flagler teachers will initiate telephone communication whenever they disagree with something and that they all communicate when Ms. Flaherty asks them to. Overall, Beginning Teacher[2] does not like using the handset because of the delay time.

In regard to Ms. Flaherty, Beginning Teacher[2] comments that she is late returning assignments and says that she has only received three back in nine sessions. Beginning Teacher[2] also says that Ms. Flaherty is good at initiating interaction between beginning teachers and coaches but does not follow up as well as she could. Overall, beginning Teacher[2] feels that Ms. Flaherty is doing an excellent job. The program content is useful, but it does seem to be somewhat repetitive. The schedule of topics did not correspond with the opportunity to utilize the material in real-life situations (e.g., Parent/Teacher Conferencing was discussed after the last actual scheduled conferencing period at most schools had been completed). She adds that Ms. Flaherty was excited about teaching, can relate to the

participants, and was extremely enjoyable. She noted that class time really flew by.

Concerning testing, Beginning Teacher[2] feels that comments on assignments do not have sufficient depth and that negative comments are never made. She mentioned again that she would like assignments returned more promptly.

Beginning Teacher[2] feels that the **PARTNERS** program has been extremely beneficial, especially in the class management aspect of helping her with day-to-day activities. She feels that interactive television has allowed her to participate in a program that otherwise would not be available. Beginning Teacher[2] has developed a close bond with her peer coach and adds that **PARTNERS** has allowed her to have a more positive and relaxed attitude towards her job. It has helped reinforce her own belief in being positive. Beginning Teacher[2] suggests that all teachers, both new and tenured, should take this course to encourage fresh ideas into their profession. Overall, it was a "great experience" and she benefitted tremendously from it.

Our personal observations of Beginning Teacher[2] are that she is enthusiastic about teaching. She was extremely personable and open about her comments and concerns with the **PARTNERS** program. Her involvement with her students was evident by the school plays she sponsors during the year. In fact a dinner theater production was planned for the night of our visit. She spoke highly of her peer coach and has developed a close relationship with her, both

professionally and socially. We believe that while she does feel somewhat isolated in rural Colorado, she is making the best of the situation. Beginning Teacher[2] was at a stage in her teaching career when her eyes still twinkled with enthusiasm when she spoke of what she hopes to accomplish.

Beginning Teacher #3 Interview. Beginning Teacher[3] was a white male, seemingly in his early thirties. He had taught social studies for three years in California; however, this was his first year teaching social studies in Flagler. Our initial impressions were that he appeared to be very confident and competent, so we were surprised to learn that he was taking the **PARTNERS** course as a confidence builder. In fact, in the interview, his uncertainty and lack of confidence were revealed on several occasions.

Overall, Beginning Teacher[3] reported that **PARTNERS** had served his particular needs "fairly well" and that the program had been "fairly beneficial" to him personally. Our probing revealed no problems whatsoever with the programming, in his perception--in fact, all of his specific comments and examples were very positive. His only criticism seemed to be that **PARTNERS** should meet more frequently. We sensed a real need for a support group in this instance.

This beginning teacher rated the quality of the production, instruction, and administration of the program as "excellent." Like most other students, he reported initial apprehension in using the phone, but his reticence

had gradually turned to much more positive feelings regarding the telephone interactivity. Now he reports using the phone one-to-two times per session and feeling quite comfortable doing so.

Beginning Teacher[3] was particularly positive toward Ms. Flaherty's teaching abilities and pointed to her as an excellent instructional role model. Particular points of strength mentioned were his teacher's frequent use of specific examples from her personal experiences. When queried about Ms. Flaherty's weaknesses, he couldn't think of one.

The student was also extremely enthusiastic about the quality of his coach, reporting that the peer coach had served his needs "tremendously." The coach had helped by providing ready feedback, support, and assistance, and the coach had reportedly made him feel more positive about his abilities as a teacher. Moreover, this student, more than most, emphasized the real benefits of **PARTNERS** for <u>his</u> students. He noted that he had learned alternative and more beneficial ways of doing things, and he mentioned that he had been able to translate Ms. Flaherty's mechanism of providing diverse forms of positive feedback to her students to his ways of supporting and encouraging his own students.

This interview concluded by Beginning Teacher[3] saying that <u>every</u> beginning teacher should have the benefit of a course such as this--either delivered personally or via television.

Beginning Teacher #4 Interview. This beginning teacher was one of the Deer Trail commuters. Seemingly in her early thirties, she had substituted for 1 1/2 years, but this was her first year as a teacher. She was teaching fifth grade. The Deer Trail school system is quite small, only 160 children in K-12, and our conversations led the evaluators to believe that a program such as **PARTNERS** is particularly essential to smaller schools where there is little or no opportunity to interact with teachers at the same grade level. An additional problem at Beginning Teacher[4]'s school was that **PARTNERS** had not been and was not being encouraged by the school administration.

This beginning teacher's evaluation of the **PARTNERS** program was that it was excellent. She stressed the high quality of the production, the curriculum, and particularly, the instruction. The strengths of Ms. Flaherty she pointed to were her positive manner, her excellent public relations ability, the fact that she handles all sorts of people very well, and the fact that she is extremely knowledgeable. She also indicated that Ms. Flaherty has an excellent television presence (we agree!) and makes every **PARTNERS** day fun and interesting. She noted that at least 85% of the content of the course had been of use to her personally, and she had recommended this course strongly to other beginning teachers. In terms of **PARTNERS'** particular benefits to her, three important points were mentioned: (1) that **PARTNERS** taught you that it was OK to have problems, (2) that the

program gave one tremendous confidence, and (3) that the program gave increased esteem to the teaching profession.

Again the peer coach was given superlative marks, and the value of the coach's support and feedback were stressed. She also noted that her fifth graders had benefitted directly from her taking the course, especially in that it inspired her to be a more motivating teacher.

The only suggestions offered to make the course better were: (1) not to be so hurried at points, (2) to cut down somewhat on the paperwork, and (3) to provide more and quicker feedback on the assignments. All in all, however, Beginning Teacher[4] reported that **PARTNERS** was a "God send."

Peer Coach #1 Interview. Peer Coach[1], a white male, seemingly in his early 50's, has been teaching for 29 years and currently covers all courses in the Flagler 6th grade. As mentioned previously, he and Mr. Ricken were in the beginning stages of constructing a program similar to **PARTNERS** on their own, and he had been very excited to hear about the program.

Peer Coach[1] commented that reception was usually good and that he could recall only two instances of poor reception. The reception on the day we were there was the worst he had experienced. Peer Coach[1]'s biggest concern with using the handset is maintaining contact. The echo that results through the handset was annoying at first, but he got used to it by turning the volume down. He states that Flagler initiates communication with the instructor

sometimes, but never with other sites. He personally communicates every month. At the beginning of the program he didn't enjoy using the handset, but again, he got used to it.

Peer Coach[1] approves of Ms. Bernhardt's performance as Project Director, but also expressed his concern about not receiving assignments back in a timely manner. He rates Ms. Flaherty's performance as excellent and states that she builds positive affective relationships with members in a way that is not obvious; rather it occurs naturally. He adds that Ms. Flaherty is enthusiastic and interested in the program.

According to Peer Coach[1], the objectives and procedures of the program were not clear to him at first. This may be due in part to his missing the first class session.

Peer Coach[1] has enjoyed his role as a Peer Coach[1] and has developed a good relationship with his beginning teacher. He feels that by being readily available, he has been helpful to his partner many times. He notes that the program serves as a good springboard by bringing up topics that may not normally be discussed between teachers. The session on Time Management was not particularly helpful to him (perhaps 29 years of experience has something to do with that), but all of the rest were very productive. Peer Coach[1] would recommend **PARTNERS** to all teachers and points out that experienced teachers have problems too. **PARTNERS** allows the teacher to get a better perception of "self."

Although Peer Coach[1] misses the more complete interaction of face-to-face instruction somewhat, he feels that you can have quality instruction without it.

Peer Coach[1] added that the early Saturday time schedule made him grumble but feels that his presence provides personal contact which is very important to the new teacher. He said that the new teachers (partners) are the most important aspect of the class and that if **PARTNERS** can assist them in getting through the first years of teaching and surviving, then it is a success. Peer Coach[1] wished more teachers would have the opportunity to participate.

Our personal observations of Peer Coach[1] are that he is genuine in his concern for beginning teachers. He sincerely wants to help make the beginning years of new teachers a rewarding and successful experience. Although he reports enthusiasm about **PARTNERS**, I think he sees himself as more of a "support" person. I would suspect that in his years of experience he has seen and done it all and is relatively settled in his ways. He has a healthy attitude, and I can understand Mr. Ricken's choice of him to develop a similar type program. He would make an excellent facilitator.

Peer Coach #2 Interview. The second peer coach interviewed was a first grade teacher at Deer Trail. She had taught for 10 years and was asked to be a partner because she had taught 5th grade at one time. This teacher was extremely articulate and made her points with great (and very useful) precision.

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Peer Coach[2] reported that **PARTNERS** had served her own needs extremely well, as it apparently had those of her partner. She was only moderately pleased with the production quality of the **PARTNERS** seminars, but she thought that the curriculum and instructor had been superb. On two occasions she mentioned how she had been impressed by the "affective rapport" Ms. Flaherty achieved with the students. She also mentioned, as did others, that Ms. Flaherty had "practiced what she preached" and was super in staying on track and achieving the course objectives.

Although extremely positive about her experiences as a peer coach, this experienced teacher was also quite realistic about the demands peer coaching dictates. Seemingly a perfectionist, she emphasized that she had needed more time for observing her partner and visiting with her in order to do as effective a job as she had wished to do. She mentioned that her partner had had a difficult class and equally difficult parents and indicated that she could have done a better job if she could have spent more time with the beginning teacher.

Peer Coach[2] emphasized that she had found the seminars personally quite beneficial, especially the one on classroom management, but she emphasized that every session had been worthwhile. That's saying something, when you factor in an hour round trip beginning early on Saturday mornings. She also mentioned that it had been beneficial to get to know the fine teachers in Flagler. We sensed that even

experienced and obviously competent teachers in remote locations need a strong support system.

One concrete and potentially useful suggestion mentioned by Peer Coach[2] was that administrators needed to take part in **PARTNERS** too. She noted that Mr. Ricken had been extremely helpful to the group and suggested that **PARTNERS** probably had helped him likewise. (He had already told us as much!)

Peer Coach #3 Interview. The esteem with which Peer Coach[3] is held in the Flagler system can be seen in the fact that she had not one, but two, partners. A vivacious, poised woman, seemingly in her late 30's, she had been teaching for a dozen years--business education in the high school and physical education at the elementary level. We quickly sensed that she was a quiet leader of the group and a pillar of the community.

She was extremely positive about **PARTNERS** (as her partners had been about her), especially the quality of Ms. Flaherty's instruction. She said that she was amazed how "quick" Ms. Flaherty was and how well she thought "on her feet." Other compliments to the teacher included comments that she was "knowledgeable," "lives what she says," "takes all our situations into the problem task--no matter how far out," and "loves what she and Vicki do with the pictures and special personal items to personalize the distance learning process." She also noted that she had not expected to learn as much as she had from the seminars and had found them to

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be very helpful. She had found the sessions on time management and teaching "at risk" students to be extremely beneficial.

Overall, Peer Coach[3] rated her coaching experience as "extremely positive." She felt that she had been beneficial to her partner (1) in providing them with a legitimized source to which to turn, and (2) in assuring them that "it's not you that is the problem." She too noted that she had not had as much time as she had wished to devote to peer coaching, especially for in-class observation. With two partners, it's no wonder. She concluded the interview by noting the critical need for more courses like this. We would only add that the need is also great for teachers like her.

Program and Process Notes Continued. With our interviews completed, the evaluators returned to observing the seminar and our class. Ms. Flaherty was discussing the importance of assessing the character of the parent during the conference. Additional role playing was done to emphasize the right and wrong ways to conduct a conference. The five phase procedure was outlined and utilized. The five phases are: warm up, stating positive attributes of the student, growth (progress) of the student, request for parent/teacher cooperation, and a positive conclusion. Beginning Teacher[2] called in and commented on addressing the home responsibilities of students. Babysitting other

siblings, jobs, and fighting within the family were discussed as pressures on students. Ms. Flaherty agreed.

The class assignment for the following week was to photocopy the parent/teacher conference outline from the workbook and complete several conferences utilizing the format. Flexibility was encouraged when using the outline. Beginning Teacher[2] had some questions about the assignment and Beginning Teacher[1] and Peer Coach[1] attempted to clarify them for her. Beginning Teacher[2] continued to discuss parent/teacher conferencing while Ms. Flaherty was concluding class. At the conclusion of the seminar, Mr. Ricken briefly addressed the participants and stated that the discussed outline and procedures would be useful for parent/teacher conferences next fall. He stressed that each teacher should act as a resource for other teachers in their systems and communicate the process to them.

Summary Notes. Overall, we were impressed with the enthusiasm exhibited by the peer coaches and beginning teachers at Flagler. It is evident that the support of the extremely fine and effective Superintendent, Mr. Ricken, has been instrumental in the success of the Flagler **PARTNERS** program. Most partners' comments were highly favorable about the course and the instructor. The most common complaint was a need for more feedback from written assignments. Perhaps as teachers, the participants are accustomed to returning assignments to students with written comments and expect that from Ms. Flaherty. In contrast,

Ms. Flaherty may view the written assignments as confirmation of the utilization of concepts learned in class and not see them as requiring feedback from her.

With the possible exception of Beginning Teacher[1], we found the participants to be strongly encouraged by the **PARTNERS** program. Perhaps Flagler's beginning teachers, with their fine Superintendent, may not have been at the point of frustration that would have resulted in their quitting, which is the case with many remote, rural school districts, which have incredibly low teacher retention rates, but it is apparent that **PARTNERS** served as positive reinforcement for them to continue with added enthusiasm. The bond that seems to develop between peer coaches and beginning teachers is one of the most positive results of the **PARTNERS** program. Long after the television is turned off and workbooks gather dust on bookshelves, the relationships developed during the program will continue to support and reinforce the professional and social lives of all participants.

Although none of the partners interviewed indicated much interest in the production elements of the tele-seminars, the evaluation team finds it appropriate to mention some production features and programmatic elements of **PARTNERS**. Some production features were very positive. For example, the superimposition of the instructor in the upper right corner of the screen when text was being presented was an excellent idea. Moreover, Dr. Bernhardt's

"candid camera" photos, and the regular use of contributed snapshots of the site participants was a clever touch that added to the intimacy of the presentations, making distance learning seem less distant. On the other hand, there were some production problems: On several occasions, both in the taped seminars that we reviewed and in the seminar presentation on the day of our site visit, several basic production glitches occurred, and they should be corrected. For example, Ms. Flaherty called for particular camera shots in order to highlight materials several times and had to wait and wait for the production personnel to react. Or, amazingly, the film strip used on the day of our site visit was shot off of a movie screen located behind Ms. Flaherty. Surely the production facility has a film chain that could produce a better picture. These are small "bugs," but they can impair a teacher's ability to communicate effectively and should not occur in a program of this quality.

Programmatically, we saw much that was noteworthy in every **PARTNERS** seminar we watched, and we saw practically nothing that we noted as being "wrong." Some of the best things we observed were the excellent pace and variability in instructional methodology of the teacher. Couple these with the remarkable ability of Geraldine Flaherty to be empathetic and responsive to unseen learners, and the distance learning environment is transformed into lively, interactive classrooms in which students "see" their teacher as if she were face-to-face. We wish we could "bottle" Ms.

Flaherty's ability to obviate the problems of distance. In all of our interviews, no one--beginning teacher or peer coach--complained about the fact that their seminars were televised. When we point blank asked the beginning teachers and peer coaches whether they would have learned any more or felt any closer to their teacher if the teacher had been in the classroom with them, by far the most common response was a resounding "NO!" That's impressive.

The final thing that we would like to note is that this is obviously a class that has made a difference--a critical difference. Teacher after teacher told us that **PARTNERS** had improved their classroom teaching, had shored up their morale, and had helped them decide to remain T-E-A-C-H-E-R-S. Some of our interviewers spoke of their **PARTNERS** experience in analytical terms, others interpreted their experiences in "warm fuzzies"; but every single person interviewed thought **PARTNERS** should be continued and extended. To a person they emphatically proclaimed that their colleagues would benefit from the **PARTNERS** experience.

Site Visit

FOREIGN LANGUAGE IN THE ELEMENTARY SCHOOL

Asheville, North Carolina

May 7, 1990

TI-IN United Star Network evaluators Dr. Jennings Bryant and Steve Rockwell arrived at the administrative offices of the Buncombe County School System at approximately 3:00 p.m. E.S.T. on May 7, 1990. The mountain setting of the facility was beautiful, but the buildings were old and portions were quite dilapidated, with peeling paint, broken blinds, cracked windows, and various other indices of neglect. We learned that the school board was planning a move to a newer facility, but the current building had to be sold before the occupants could relocate. Obviously they had decided not to invest any more money repairing the current structure. The site housed the school system administrative offices, as well as rooms for teacher in-service training. We spoke to various officials about the **FOREIGN LANGUAGE IN THE ELEMENTARY SCHOOL (FLES)** programs and then were directed to the TI-IN classroom. When we arrived, the teachers were rehearsing foreign language songs that they could sing with their classes. The person we had been told was acting as the **FLES** facilitator told us that she really did not know a lot about the program and that we needed to talk to a class participant who actually was serving as the facilitator for the class.

Classroom Setting

The TI-IN "classroom" was housed in a portion of an old auditorium. The monitor sat on the stage area with tables in front of it in a horseshoe-shaped arrangement. The tables were overly far away from the monitor for maximal visibility, and when class members attempted to use the handset they were forced to move eight to ten feet closer to the monitor.

Observation of FLES Program

The class started at 3:30 p.m. and was hosted, as usual, by Fran Hoch. The guest for the opening portion of the program was Carol Ann Pesola, who presented a lesson on evaluation--assessing the progress of students and of programs. The handset was not used at our site during this presentation, and the volume of the audio seemed to be a little too low for some in the room to hear effectively. However, no one took any initiative in controlling the environment. Since the facilitator was involved in the class, she may not have been able to be as effective as a person whose sole role was serving the needs of the teacher and the class. Although the facilitator attempted to be responsive and did have all handouts prepared, she seemed to be overloaded in trying to keep up with the program and her facilitator duties.

The FLES program was shot using standard two-camera techniques. During the first hour, interaction was seldom solicited or encouraged; the guest presented a great deal of

information which was, for the most part, read. The Buncombe County teachers were quite attentive, although a few muttered "slow downs" were heard. Some of the vocabulary used by Ms. Pesola could possibly have been a bit too technical for some of the elementary school language teachers, as a couple of the teachers asked others what certain words and phrases meant. The teacher also spoke too rapidly at times, causing some students to struggle to keep up. By the end of Ms. Pesola's presentation, a couple of our students had apparently "given up" and were talking quietly or doing lesson plans.

The Buncombe County FLES class consisted of seven female and one male teachers Six were Spanish teachers, another taught French, and the eighth was trying to get a job teaching French in the system. Since the class started at 3:30 p.m., and some teachers had to drive a substantial distance to attend, a couple of participants were late. Their quite understandable late arrivals appeared to distract several other participants. Any noise made in this large room tended to be amplified by the theater acoustics and interfered with attention to the program.

For most of the program, the interactive technology was not used. During this time, videotapes could have been used just as effectively to deliver the lecture. Few concrete examples were offered during the presentation, and some of those that were used were weak, even misleading, as members of our class were quick to point out. It would have been

more effective if the students had been provided with some sor of workbook to go along with the lecture so that they would have materials that could be readily transferred to their respective classrooms. Also of use would have been a set of readings (yes, "homework") to be examined prior to class so that discussion could have been employed more effectively.

Fran Hoch showed some videotapes of teachers talking about their classroom methods. Tapes of children displaying their knowledge about foreign languages were also shown. With these actuality tapes, all of the Buncombe County participants watched the screen 100% of the time. Moreover, the vignettes with the children helped interject a bit of humor and seemed to help recapture the attention of the teachers viewing the lecture. At the very least, these tapes broke up the monotony of much of the early part of the program. Another guest followed--a teacher who shared her own evaluation methods with the audience. The teachers at the site seemed more interested in this more practical lecturing than in the more theoretical approach previously utilized, and attention to the screen was approximately 70% during this presentation, with no talking. Then Ms. Hoch asked Ms. Pesola to comment on this teacher's method of evaluation. This process--evaluating the evaluation--worked quite well and generated quit a bit of useful discussion at the Buncombe County Site.

At this point Fran Hoch actively solicited interaction. The Buncombe County participants were initially hesitant to use the handset, and when two women finally did so, they did not appear very proficient in using this technology. One student had trouble holding the handset and directing the antenna toward the monitor. It appeared from this exhibition that the Buncombe County participants rarely used the handset, an observation which was substantiated in our later interviews. To make matters worse, the participant who did call in posed a question which was never answered to her or the group's satisfaction.

During the remainder of the program, our participants began to grow restless and seemed more "testy." With increasing social interactions, the participants clearly were losing interest in what was being said. Certainly a portion of this inattentiveness could be due to the fact that the program is aired after the school day ends, and the participants were tired from a day's teaching duties. As fatigue increased, they also grew a bit more critical of what was being said. Whatever the reasons, they certainly did not jump at the chance to call in and relay to the experts the questions they were discussing among themselves. When the program began to draw to a close, many of the students quickly departed, even before Ms. Hoch could conclude her wrap-up.

Interviews with Participants

Before, during, and after the course we interviewed the eight students. All were very pleasant, open, gracious, and helpful. The first woman interviewed was completing her second year with the Buncombe County schools. She thought the program had an excellent overall organization, but she had not learned as much as she had hoped. She said she had problems with the physical distance between the students and the lecturers. She felt that only certain sites could get through to the host, and she desired more immediate and personal feedback than was available. She felt that the program would be improved if a group leader or teacher at each site could serve to offer immediate "live" feedback. She also said that she thought that much more time should have been allowed for productive, content-related interaction between the students and the guests. This participant added that she thought that the guests were high-quality, knowledgeable people who knew what they were talking about. She stated that she particularly enjoyed the segments which had shown teachers actually teaching instead of talking theoretically about the process.

The second female interviewee had been a teacher for the past 12 years and has been involved in the **FLES** program for one year. She stated that she had no interest in using the interactive technology and grew weary of watching television, which she professed rarely to watch at home. Equipment malfunctions also frustrated her. She also did

not like the hour the course was scheduled, because she was just too tired to give the content her undivided attention. On a more positive note, she did state that the technology has given her the opportunity to hear lectures from some really qualified people, a chance she normally would not have. She noted that some of the programs had been useful.

The third interviewee was a woman from Spain who had taught in Spain for 2 years and had been involved in FLES for the past year. She had two major problems with the TI-IN system. She found it hard to communicate with people who could not see her, and thus she had never used the handset to talk with the lecturers. She also found it difficult to keep a high level of interest in the program due to the time of day it was held. She noted that the program could be improved if they showed more teaching rather than just talking about it. She also reported that the quality of the teaching was pretty good, although she felt some of it was redundant to what the Buncombe County Spanish teachers had learned in other in-service training sessions. Overall, she had liked the program, especially the segments which had shown actual teachers engaged in their trade.

The fourth interview was with a woman who was not currently teaching but wanted to return to the classroom. She had taught French at the high school level for nine years elsewhere but was burned out on high school teaching. Although she was not terribly comfortable with the interactive process, she had no major problem with learning

via television. She did state that she had found it difficult to ask questions via the handset, partially because ample instruction in the use of this technology had not been provided. She stated that she felt that the overall quality of the lectures had been "mediocre." She added that she felt that too much time had been wasted by "happy talk" and viewer call-in time spent in "chatting." She also noted that more concrete examples of the theories discussed would have been more helpful, as would more videos of actual teaching. She also thought that her fellow classmates had not been very involved, and she reported that they did not seem very interested in the lectures. She did say, however, that her classmates typically paid more attention to the videos, demonstrations, and examples than they did to the rest of the "show." She thought that the most useful part of the process was being able to see some experts from other parts of the state and from around the country. She had also found the videos of classroom demonstrations most helpful. She stated that she found the segment on "materials" to be the most memorable.

Interviewee #5 had taught French in high school for several years and had been teaching in the Asheville City Schools FLES program for one year. She loved teaching in the FLES program and living in the Asheville area, but she had been less than thrilled with the TI-IN FLES telecasts. She had been a student of telecourses in other locations in the past, and reported that this course had compared

unfavorably with them. She described the host as "overly maternal and 'matronizing'" and most of the guests a- "probably quite good college classroom teachers but, as a whole, generally weak television teachers." She said she had enjoyed and benefited from the presentation of some of the guest experts, particularly "the cart lady," who had explained how itinerants could "tote and use" their goods. Other guests had, in her words, been "talking textbooks." She said that to her knowledge, prior to today, no one at the Buncombe County site had volunteered to use the handset to interact with the teachers. As a whole, she gave the TI-IN **FLES** course a grade of "C."

The sixth interviewee was as positive as the previous interviewee had been negative. Our impression of this male **FLES** student was that he was a fledgling teacher who had retired from another career and had moved to the Asheville area only recently. This was his first year in **FLES**. As "up" as he was on the Western North Carolina Mountain area, he could have been a "shill" for the Chamber of Commerce. He said that he had really needed this course, because his college education courses had in no way prepared him for teaching, and he thought that the TI-IN **FLES** course had been "phenomenal." He emphasized the essential nature of such teacher development courses during the interim period before colleges really get geared up to full speed to teach **FLES**. He reported that he found Fran Hoch, the moderator, to be "charming," and he had nothing but compliments for all of

the television teachers they had seen. He did say that the presentations could have been more lively in spots, but he still gave the course an "A."

With the seventh interviewee, we regressed to the mean in terms of liking for the **FLES** telecourse. This woman was an experienced teacher who had spent several years teaching high school English and then had switched to high school Spanish. This was her first year in **FLES**, and she had enjoyed the experience of teaching Spanish to the youngsters but not the logistics of teaching at two schools. She saw clear strengths and equally clear weaknesses with the TI-IN **FLES** course. First, weaknesses: She reported that the affective dimensions of the interaction between the moderator and students, especially the revival-meeting "testimonials," were "tacky." She was particularly peeved when participants at other sites called in with nothing to say except "hello." She had found some of the content useful; other portions to have been wasted on her. To her knowledge, other than this day, no one at her site had voluntarily called in on the handset, although she said that she had tried to do so unsuccessfully. She also mentioned a problem with "one machine for two courses," but we forgot to follow up on this and find out what this equipment problem was about. In terms of strengths, she said that the videos of the **FLES** children and teachers in the classrooms had been "invaluable." She was upset that one of the day's videos had been a "filler." [It was. Evaluation was not

discussed, presented, or even mentioned.] Also noted as beneficial was hearing that others in the field had problems almost exactly like her own. Overall, she gave the course a "B-" but Fran Hoch an "A for effort." She thought that the telecourse should be radically modified but continued, and she had "no problems" in taking teacher training via televised instruction.

The final interviewee was another first year FLES teacher, a recent graduate whose college education had been in an area almost totally unrelated to language education--public policy studies. She noted that the TI-IN FLES course was "better than going to Raleigh" and added that, for her, taking such a course had been essential. Nonetheless, she offered far more criticism than praise for this telecourse. First, she wished that the "Hi and how are you" portion of the programs had been canned after Day 1. And she too criticized the fact that today's primary video insert had not been related to the topic of the lesson--evaluation. She noted that the guest experts had "talked too much and shown too little," and she complained that a great deal of time had been wasted during the program. Regarding the evaluation unit, she asked why more had not been presented on "the Ferndale program," which she thought was superior to what had been presented. She also said that the State Department of Public Instruction's "incoherent and inconsistent vision" of foreign language instruction in the elementary schools--FLES vs. FLEX vs. Immersion--had been a

problem on the program as well as in the schools. [The evaluators have to confess that we could not follow up on this point due to ignorance with the content area.] Her final critiques were similar to others we heard: Too much time was devoted to socializing; the interactive potential of the medium had been wasted; and there had been much too little demonstration for a telecourse. On the positive side, she added that the topics and issues covered had been quite appropriate and that the overall organization of the course had been good. She thought that the TI-IN FLES course should be continued after "a significant makeover," and added that it should be beefed up and offered for university graduate credit.

Evaluators' Critique of Programming

One of us (Jennings Bryant) had observed a TI-IN FLES class last summer and had been somewhat critical in evaluating the course. So one of our agenda items in this evaluation was to assess any areas of improvement made in the course since the earlier evaluation. We found some. The pacing had improved greatly, with added variety in the format of presentation and a little more versatility in production elements. We--and the Buncombe County site participants--particularly liked the video insert of the kids in their classrooms, and our participants laughed and laughed at what the students said. We were also pleased to see a bit less lecturing and a little more give and take with some good attempts to elicit discussion and critiques

between guests. All of those represented real pedagogical progress in terms of television teaching.

Nonetheless, as our interviewers were quick to note, the revisions had not gone nearly far enough, and the interactivity was wasted if not downright disruptive. When we last evaluated the TI-IN **FLES** course, we had judged it compared to our ideal standard of what a teacher training telecourse should be. This year, we had the added advantage of having two days previously evaluated a TI-IN United Star School teacher in-service telecourse that had utilized the television medium well and had used the system's interactivity to perhaps its full potential.

The contrast between the **PARTNERS IN PROFESSIONAL GROWTH** classroom we had observed and the **FLES** Buncombe County classroom was remarkable. With **PARTNERS**, the classroom had been a focused, lively, involved environment, with students reaching for the handset to engage in useful discourse, then working actively in small groups, then interacting with the teacher or another site, then watching demonstrations, or whatever. With **FLES**, the classroom certainly was not a disaster, but no one could have labelled it as a dynamic learning environment either. What are the key differences between **PARTNERS** (which was not perfect either, not by a long shot) and **FLES**? First, although the "content" and "purposes" of the courses are not all that different, the instructional techniques, "learning

packages," and uses of the interactive television medium were dramatically different.

Let's begin with instructional techniques. First of all, Geraldine Flanigan, the PARTNERS teacher, demonstrated and instructed rather than lectured--"show and tell" versus "tell and tell." With **PARTNERS**, the screen was alive with visualization, and students' attention was called to the key points quite dramatically. Secondly, Ms. Flanigan demanded productive involvement. She had her time for social exchange and "cutsey" comments, but they served the function of drawing the classes into the lesson, rather than serving seemingly as an end in and of themselves. Thirdly, Ms. Flanigan planned numerous small groups problem-solving activities that each site had to do and then talk about (a) among themselves, (b) with her, and (c) with other sites. Feedback was instantaneous, varied, and useful. Diverse activities were interspersed throughout the lesson, mixed in with lecture, demonstration, video inserts, and whatever. Finally, Ms. Flanigan made every point in the presentation apply to each person's teaching situation. Application was reinforced over and over, was customized through exercises, and was hammered home through focused interactive dialogue. With **FLES**, most of the presentation was visually lacking, non-involving, and nonparticipatory. The results could be clearly seen by observing the contrasting classrooms. **FLES** was instruction; **PARTNERS** was education.

The "learning packages" of the two programs differed greatly also. We tried to find out what accompanied the **FLES** programs, and all we were shown was a few standard outlines and handouts. In contrast, **PARTNERS** featured excellent workbooks, homework materials, and follow-up action research plans that were designed to permit the easy implementation of the content of the lessons. Without belaboring the point, what resulted was active learners in **PARTNERS**, more PASSIVE "receivers" in **FLES**.

We have already mentioned the differences in interactivity between **PARTNERS** and **FLES**. Permit us to elaborate. First, every learner with **PARTNERS** knew how to use the handset properly and used it with every lesson. At **FLES**, although the course was almost over, we had to show the pupils the correct way to use the handset. They were embarrassed, and we were embarrassed. Secondly, with **FLES**, interactivity was encouraged, but only at fixed points and in standardized ways. Social interaction and "checking in" was the initial order (accompanied by grimaces from several of the Buncombe County participants), and at a latter fixed point, Ms. Hoch noted that "Questions and comments were invited," and the screen displayed a complementary graphic request. This is hardly sound pedagogy in a classroom and certainly doesn't work for distance learning. As we have already noted, with **PARTNERS**, interactivity was a natural portion of every part of the program. Finally, the nature of the interaction was different on **PARTNERS** and **FLES**, not

just quantitatively, but qualitatively. In **FLES**, the questions were didactic; in **PARTNERS**, they were participatory. Form followed function.

Summary Comments

Although once again we have come down fairly hard on the TI-IN **FLES** telecourse, our criticisms do not mean that it has not been a valid, useful course. It has. Almost all of the participants we questioned affirmed its value in their teaching. Many proclaimed it to be essential. Some liked it a lot.

The problem is that it was not even close to being all that it could be. The problem is that it did not always practice good pedagogy, especially good distance learning pedagogy. The **FLES** concept is marvelous, and we applaud the early teaching of foreign language in the elementary schools. We laud North Carolina's pioneering efforts in this regard. We just wish that more creative efforts could have been put into inspiring and educating the teachers whose charge it is to carry out the **FLES** mandate.

II. HIGH SCHOOL CREDIT COURSES

Site Visit

TI-IN ANATOMY AND PHYSIOLOGY

Gordo High School

Gordo, AL

On March 5, 1990, a TI-IN United Star Network evaluation team comprised of Dr. Jennings Bryant, Lisa Scott, Curtis Love, Steve Rockwell, and Karla Schweitzer visited Gordo High School in Gordo, Alabama, a town of 2,100 located in west central Alabama. Gordo High School, the home of the Gordo Green Waves, is a relatively small high school with an enrollment of 386 students in grades 7-12. The school was renovated in 1989 and appeared to be in excellent condition.

Interview with Gordo Principal

Upon arrival at 10:15 a.m., the evaluation team went to Principal Lew Cornelius' office and waited while he administered corporal punishment to a student. Mr. Cornelius, a tall, heavy-set, white male of about 50 years, returned, and we were ushered into his office. We asked general questions about the school, its renovation, and its environs before soliciting his observations on the TI-IN system.

Mr. Cornelius' overall opinion of the effectiveness of the TI-IN United Star Network project seemed to be negative. He pointed out that initially the school had experienced difficulty with the equipment. Either it was hard to

operate or there was an inherent malfunction. Mr. Cornelius added that problems with the phone lines precluded the school from contacting TI-IN headquarters in San Antonio for help. He expressed the opinion that possibly some teachers who felt the system was a threat to their jobs could have sabotaged the equipment. Subsequent conversations with both students and teachers failed to corroborate this opinion. Others we talked to indicated a genuine interest and approval of the TI-IN technology and process. Since Mr. Cornelius' wife serves as the site facilitator, his defensive attitude might be a rationalization for any difficulties she might have had operating the equipment. Since he also intimated that he considered TI-IN programming to be a viable replacement for a departing physics teacher, he could have been projecting his views onto the other teachers and could have assumed that they perceived the technology as a threat. Mr. Cornelius also mentioned that there was some conflict with the regular in-school science teacher, Ms. Lark, who had previously taught the Anatomy and Physiology course.

The Class Environment

Shirley Cornelius, a pleasant but rather timid person, came in to introduce herself and let us know where the TI-IN class would meet. After completing our interview with Mr. Cornelius, we proceeded to the appropriate room, where we were met by Mrs. Cornelius, who was taping a French lesson for later use by a French class. Ms. Lark, a black, M.A.-

level biology teacher, and several of the students were already present. The 30-seat classroom had a laboratory table at the left front and the equipment cart at the right front of the room, and student desk-chairs filled the rest of the space. The temperature was comfortable, but the lighting was rather dim.

The students who arrived early were responsible for setting up the TI-IN equipment. We sat around the perimeter of the classroom to better view the students, who, according to Mrs. Cornelius, would sit in the back of the middle of the room for the most part. It took some time for all of the students--5 females and 4 males, all white--to arrive, settle in groups around the room, and prepare for class. All nine students were college-bound and had been counseled to take the TI-IN **ANATOMY AND PHYSIOLOGY** class. All but one student had arrived when the lesson started. Most students sat as far away as possible from the television screen, too far to adequately monitor all the details that would be shown in the lesson. A group of three students in the back corner was as far as 25 feet away from the monitor. Only one student was within reach of the handset, which remained inside the equipment storage cabinet during the entire session.

Observation of **ANATOMY AND PHYSIOLOGY** Class

As the transmission of the **ANATOMY AND PHYSIOLOGY** class began and the TI-IN instructor, Marilyn Stephens, made some general announcements, the class continued to talk, laugh

and shuffle papers. While most of the talking appeared to be related to the class, it was rather loud and had to distract the students' attention from what the instructor was saying. Soft drinks and snack foods were consumed during the class, producing more background noise. The facilitator had left the room when the class began in order to make copies of an upcoming assignment (which could and should have been copied in advance). No positive communication whatever took place between students and facilitator during our visit. Ms. Lark sat at the front of the room, reading what appeared to be a 10th grade biology text and grading some papers. From time to time she watched the **ANATOMY AND PHYSIOLOGY** lesson.

The first order of business for the day's lesson was the grading of a portion of a previous test. Students exchanged papers at will. One student later volunteered that perhaps this practice, based on the honor system, did not always work, at least not at their school. The facilitator came back into the room to collect and distribute the students' papers. Some students got up and walked around, some talked among themselves, and one read a paperback novel. The facilitator seemed unconcerned with the disruptive behavior and only told the class to be quiet once. When outbursts by class members interfered with reception of important bits of information from the lesson, more talk would ensue in order to determine what had been missed. This was particularly true when Marilyn Stephens

was giving answers to the previous day's examination, which was the content of the first ten minutes of the lesson. The few students who did pay attention were the same ones who had come to class early, who had set up the equipment, and who sat closest to the monitor.

There was considerable disturbance on the phone line as students at other sites attempted to call in to the instructor. Transmissions either did not come through or were faint. One student noted that normally they didn't experience as much difficulty as they did that day. Another added that he found the calls annoying and that he usually called in on the land-line if he had a minor question. Ms. Stephens handled the interruptions well and kept the interaction flowing.

In the judgment of the evaluation team--every member of which has been a teacher--Marilyn Stephens did an excellent job teaching the class. She presented a pleasant, enthusiastic personality and a warm television presence. She managed to keep the class on track despite many requests to repeat answers to the test and quite a few technical problems encountered while receiving phone queries. She seemed genuinely interested in the material, knowledgeable, and encouraging of questions.

Interviews with Students

All nine students interviewed were very pleased with Ms. Stephens' instructional technique. A couple mentioned that they were particularly impressed with her ability to

recognize students by voice alone--a real bonus for distance learning teachers. One student, a female senior, told us that the only thing she didn't like about the experience was that Ms. Stephens was not as physically accessible as were other teachers. In other regards, however, this student said that the class was a valuable asset and that Ms. Stephens did as good a job in instruction as could be done whether physically present or not.

Distance from the monitor, coupled with the constant clatter, movement, and conversation, made it necessary for some students to follow along in the text. At least one evaluator had the impression that students used the class primarily in order to determine what material to study. One student said that some material was presented too rapidly, forcing the students to get together to study and determine what information they had missed in the class. Our impression was that the pace was about right and that the students would have had no trouble keeping up if the class culture and environment had been more conducive to learning.

Locally, the class did not seem to be handled in a manner which would promote the best utilization of the TI-IN system. When she was in the classroom, the facilitator did take a few notes on the lecture, but she failed to encourage the students to sit close to the monitor or to actively participate in the program. When interviewed, two students were positive about the facilitator, others were reluctant to comment on her effectiveness, while three students were

rather negative in their comments. One of the more positive students stated that at first Mrs. Cornelius was unable to operate the equipment, but added that she was improving and would soon be very capable. The other positive student said she was pleased with Mrs. Cornelius, and that even though she was unable to help them with content, she did occasionally remind them to study for the class when she saw them in study hall. Two more negative students volunteered that the facilitator had difficulty controlling the class, and that they were better behaved during our visit than usual. We had observed that the facilitator never used the handset while we were present, and in their interviews the students added that she had never used it. Some students said that they used the land-line if they had questions.

When asked to rate the effectiveness of this TI-IN class, the students responded positively. All said that they would take another TI-IN class if an appropriate subject was offered--two expressed an interest in taking French, because they were impressed with the French instructor, who they watched sometimes just prior to this class. Each student gave the class a grade, and all the grades were either A's or B's. One of the students who set up the equipment, a 17-year old Caucasian senior, said that this particular course required more outside reading than any of his other classes. He also said that the students in this class were the top students in the school, but that he did not believe that the school made a "big deal" out of the

project. One girl said that school support for the program was "OK"; another said it had been very supportive.

Evaluations of TI-IN

Some students expressed reservations about the non-instructional elements of the TI-IN program even though their overall opinion of the **ANATOMY AND PHYSIOLOGY** class certainly was one of approval. One student feared that rising costs would cause the school to discontinue the program. Another said he would not want to take a math course from TI-IN. Two others said they would not want the same facilitator for their next TI-IN class, but neither would give an explanation. For whatever reasons, the students' positive evaluations of **ANATOMY AND PHYSIOLOGY** (and of the French class aired just prior to **ANATOMY AND PHYSIOLOGY**) had not generalized to TI-IN. Nothing in our interviews or observations helps us to understand this.

Interview with Facilitator

While the other members of the evaluation team interviewed the students, Dr. Bryant interviewed the facilitator and the classroom teacher. Shirley Cornelius, the facilitator, is a quiet, shy, neat and tidy woman who performs a number of other administrative duties at Gordo High School. As noted above, our observations had suggested that she may have been less than ideally involved with the TI-IN United Star Network **ANATOMY AND PHYSIOLOGY** class. Indeed, when asked about her responsibilities, she listed "facilitator" last. In apparent contrast to her husband,

Principal Lew Cornelius, she tended to discount the equipment problems experienced early in the program and appeared to have an overall positive impression of the TI-IN program, although on two occasions she referred to this as "The University of Alabama program" (the producer of **ANATOMY AND PHYSIOLOGY**), perhaps due to the proximity of Gordo to Tuscaloosa. Although very pleasant and cordial, Ms. Cornelius was not very "verbal." She managed to turn an open-ended interview schedule that had resulted in 30-minute conversations with at least a dozen other facilitators into a five-minute monologue resulting primarily in "yes" and "no" responses. The only time she opened up was when asked about the quality of the instructor (Marilyn Stephens) and the instruction of the **ANATOMY AND PHYSIOLOGY** class, which she pronounced "Great!" and talked about openly.

One of the things we have done with most of the facilitators is to use their knowledge of the local populace to find out something about the students in the TI-IN United Star Network classes. When Ms. Cornelius was queried in this regard, she suggested that her husband should be asked those sort of questions. [We had. He had basically told us that they were the cream of the crop of the college-bound upper classes.]

Overall, Ms. Cornelius reported a positive evaluation of TI-IN and **ANATOMY AND PHYSIOLOGY**, but the interview might have been handled equally well via questionnaire, for all the detail we received.

Interview with the Classroom Biology Teacher

Dr. Bryant's interview with Ms. Lark was by far the most positive and revealing aspect of our site evaluation. We had been prepared for the worst, because of Mr. Cornelius' suggestion of her dislike for the program. In contrast, we found a warm, sensitive, concerned teacher who professed what appeared to be genuine admiration for Marilyn Stephens and appreciation for the **ANATOMY AND PHYSIOLOGY** class. She said that she had chosen to remain in the classroom where the program was aired because she enjoyed the program and benefited from it herself. She said that she and Marilyn Stephens taught the course very similarly, and that this had reinforced her confidence in teaching this particular topic. And she told us revealing facts about the students in the class.

In contrast to her positive evaluation of the telecourse, Ms. Lark noted that she was extremely discouraged by the learning culture present in this class and in general at Gordo High School. She said that it "saddened and sickened" her to see potentially good students sabotaging their education with disruptive behavior that defied learning. And she corroborated students' comments that the class had been better behaved today than usual, in "honor" of our visit. We talked at length about the factors that had helped create the anti-educational environment we had witnessed, and we discussed ways to reroute the culture--all

well beyond the scope of the present evaluation. To the evaluation team, Ms. Lark was an oasis.

Summary Notes

Our overall impression of the TI-IN project in Gordo is that its full benefits are not being realized. Students need to be motivated by a facilitator who has a nurturing concern for students and a good understanding of how a traditional classroom operates. The facilitator should be involved and have control over the seating and the use of equipment, so that the students receive full advantage of this technology and the class content.

Certainly it seemed strange to the evaluation team to subscribe to a TI-IN United Star Network **ANATOMY AND PHYSIOLOGY** course when there is an apparently qualified Anatomy and Physiology instructor seated in the classroom. Why not at least use the teacher as facilitator, as we have seen done at two other sites? Certainly there may be "unknowns" which explain this situation perfectly well, but we couldn't figure them out.

There are other "unknowns" which have perplexed members of the evaluation team as well. For example, why would the principal and the students have such discordant views of the effectiveness of the TI-IN course being taught? Or, why would the principal and the facilitator--his wife--have such different opinions on the severity of the technical problems experienced?

But the most perplexing "unknown"--one that caused two members of the team to report being "depressed" over this site visit two days later--is why should students and a facilitator at Gordo respond so very differently than others had to the same interview schedule. Many of the responses to some of the questions we asked at Gordo, except for those pertaining to the instructor (Marilyn Stephens) and the course content, have to be described as "guarded." On some items, we heard "I'd rather not say." We have never heard that from a high school student before.

Certainly Gordo High School presents a different school culture than any we have observed. Why, we do not know. But we do know that for **ANATOMY AND PHYSIOLOGY** to have been liked and perceived by the students as effective in this environment is high praise indeed.

Site Visit

JAPANESE I and **ANATOMY AND PHYSIOLOGY**

Choctaw County High School

Butler, AL

On April 6, 1990, the TI-IN United Star Network evaluation team of Lisa Madsen, Steve Rockwell, Karla Schweitzer, and Lisa Scott conducted a site visit at Choctaw County High School in Butler, AL. Butler is a west central Alabama town of 1,882. Choctaw County High School is one of two high schools in the area; the second is a private academy which typically enrolls students of higher socio-economic status. Choctaw County High's enrollment of 650 students, grades 9-12, is 65-70 percent black. Fifty percent of the students come from families below the national poverty level. The county's biggest employer is a papermill.

Interview with Principal and Assistant Principal

When TI-IN programming had first been received at Choctaw County, the school had held an open house to introduce the TI-IN system to parents and the community. The mayor and the county coroner were numbered among the dignitaries who attended the open house. The coroner had expressed a particular interest in the **ANATOMY AND PHYSIOLOGY** class, presumably not for his own continuing education purposes. The principal, Mr. Vernon Underwood, is an articulate and astute black man who has been chief

administrator of the school for the past twelve years. According to him, the TI-IN United Star Network program had been "highly accepted" and had offered Choctaw County "an opportunity we otherwise would not have had, especially in a rural area like this." He further proclaimed the significance of this Star Schools program, affirming the fact that "qualified teachers are hard to find, especially in rural areas." He noted that the TI-IN United Star Network programming had featured a "high quality of instruction, and it is well organized, well presented, and well planned." He pronounced the TI-IN program "a great asset" and added that they "don't want to loose it."

Mr. Underwood admitted that initially some teachers had felt threatened by distance learning, but "as a rule, no more." He told us that the TI-IN United Star Network program had been thoroughly discussed in faculty meetings, and he indicated that everything had been fine once he "sold the program to the teachers." He added, "We wouldn't have done it if the teachers hadn't wanted it: They did; so we have it."

Assistant Principal Nancy Chaltry, a very pleasant, stylish, and energetic older woman who facilitated the **JAPANESE** I class, noted that the "other teachers are excited" about TI-IN. She indicated that some teachers had participated with positive outcomes in TI-IN's enrichment and in-service (staff development) programs. "We have really used the satellite," she added, noting that Choctaw

County High School had been offering TI-IN's enrichment and in-service programs to other schools in the county.

The Choctaw County High School students also had made use of the satellite outside of regular classroom situations. Mr. Underwood noted that 16 of their students had paid to participate in the TI-IN ACT workshop. The school officials as well as the students were anxiously awaiting the results of their ACT tests and planned on using their scores as an acid test of the effectiveness of this workshop. They planned on comparing the results of the scores from the groups of students who had taken the workshop with those of a similar sample of students who had not taken the course, both this year and in the recent past.

A special feature of this school seemed to be the amount of parental support available, especially for academically gifted students. Choctaw County High School had four academic levels: BioPrep, Honors, Regular, and Special Education. The top-level students were in the BioPrep program. The parents of BioPrep students had formed a separate support group. Every Tuesday evening the parents supervised a BioPrep study session for their children in the school library. Mr. Underwood said that "it is almost like a fraternity." He described the students as a cohesive group; they have jackets, patches, etc. He explained that these parents had been particularly concerned about their children's education and had shown a great deal of interest in the TI-IN program.

The Choctaw County High School students also appeared to have been supportive of and interested in TI-IN. For example, the school's prom organizers had asked the TI-IN **JAPANESE I** class to write the phrase "Night of Enchantment" in Japanese on the prom's wall decorations, which had featured an oriental theme. The project had been a success, and the students had sent pictures of their background art work to Dr. Ito, the teacher of TI-IN's **JAPANESE I** class.

Although generally pro-distance learning, Mr. Underwood noted that with all of the advantages of the TI-IN program, there were also several drawbacks and problems that had led to undue frustration. Scheduling was one of these problems: First, some TI-IN classes had been offered at 7:50 a.m. or at 3:30 p.m.--well before or well after the "normal" school day. He suggested that a school with limited resources--the typical TI-IN United Star Network target school--does not usually have the resources to pay personnel to open or close the school during irregular hours. Moreover, Choctaw County High School buses 90% of its students to school, some from areas 1 to 1 1/2 hours away from the school. Transporting students to school any earlier for a TI-IN class had proven to be almost impossible, and it had been equally impossible to transport students home if they had stayed after school for a TI-IN class.

Mr. Underwood's second complaint was a tribute to the critical role of TI-IN programing in his school's curriculum. He explained that Choctaw County had begun with

the TI-IN schedule, decided what classes to subscribe to, and then built the rest of its class schedule around the TI-IN courses. When TI-IN had changed the original time set aside to telecast a course, it had sent his small schools' schedules into chaos. [This complaint had also been voiced by other schools.]

Thirdly, Mr. Underwood noted that some of the TI-IN courses had not necessarily started when scheduled. Mr. Underwood contended that TI-IN classes sometimes had started two to three minutes early, which made scheduling run tight, even causing students to miss the first few minutes of class. He offered a specific example: Choctaw County students had only four minutes to change classes. If TI-IN started early, the students missed the beginning of **JAPANESE I**. [We heard the same complaint, for whatever it is worth, about other courses in our site visits at Jemez Valley, NM, and Louisville, MS.] Also, although this is obviously a situation of the site's making, one Choctaw County High School student had to miss part of another class to take TI-IN's **JAPANESE I**. Stephine, touted as an exceptional tenth grader, had been enrolled simultaneously in the **JAPANESE I** class and the school's Algebra II class, both of which met at the same hour. She had attended **JAPANESE I** whenever the Algebra II schedule had permitted. If she had been unable to attend the TI-IN telecourse, she had taken a tape of that day's **JAPANESE I** class home to view. Even under these

conditions, she had maintained the highest grade point average in both classes.

As a final negative point in his comprehensive analysis, Mr. Underwood reported that Choctaw County High School had also had a problem with TI-IN's technical service. At one point, they had not been able to get a picture on the monitor for seven consecutive days. Mr. Underwood and Ms. Chaltry said that they had come in one Monday, and there was no picture. Ms. Chaltry contended that when they had telephoned the people at TI-IN, they had been "nice, direct, helpful, and descriptive," but they had not been able to fix the problem. The effort had been there, but the results had not. For example, TI-IN had overnight expressed new parts. Then, guided by telephone instructions, Ms. Chaltry and Ms. Camelle Thompson, the librarian and TI-IN United Star Network **ANATOMY AND PHYSIOLOGY** facilitator, had installed the parts on Tuesday. But they still could not get a picture. At this point, TI-IN had offered to send a technician on the next day (Wednesday); an offer which the school had gratefully accepted. The rest of that week, that weekend, and the following Monday passed, but they had not heard a single word from the technician, even though the facilitator had reported the problem every day, when she asked for a tape recording of that day's lesson. Finally, on Tuesday, a technician from Mobile, AL, had called and said that he would be at the school by 2:00 p.m. that day. He had

arrived by the appointed time, but Ms. Chaltry described him as a "Mr. Magoo clone." When the technician finally admitted that he could not fix the problem, Ms. Chaltry had requested that he not leave the equipment dismantled. When the technician had reconnected the equipment, Ms. Chaltry said--"by luck and by chance"--they had a picture. Those seven days, plus five days off for spring break, meant that Choctaw County High School had to make up twelve hours of TI-IN United Star Network classwork, in addition to watching each day's live telecast. The students had first tried to catch up by watching tapes every free moment, as well as by viewing during study hall time, but even that had not been sufficient. Finally they had been forced to get out of other courses to make up the missed work. Ms. Chaltry noted, "it was difficult, but the students did it."

JAPANESE I

Classroom Observation

Thirteen students were enrolled in the **JAPANESE I** class, although 37 students had originally tried to register for the course. Twelve were in the tenth grade; the other was in the eleventh. Ms. Chaltry referred to them as a "highly self-motivated" group who paid attention, and she was pleased to report that they had not been a discipline problem. [Cf. the report of the Hale County Site Visit.] All thirteen students had been either in the BioPrep or the Honors program. Of the 13 students, seven were white females, four were black males, and two were black females.

The students sat facing the monitor at three rectangular tables. The monitor and A/V cart were located in the left front corner of the room; the facilitator sat in the back row, slightly to the left of the students seated in that row. Two vertical rows of florescent lights lit the classroom, which had several Apple and IBM computers located along the perimeter walls.

The **JAPANESE** I class we evaluated that day was different in that it was not telecast live. It had been prerecorded, apparently the previous day. As the class began, Dr. Sukero Ito, who was attending an out-of-town professional meeting, apologized to the class for not being live, and, therefore, interactive. He also apologized for the cancellation of the day's office hours and for the students not being able to call in if they had questions. Dr. Ito asked the students to write down their questions and call him during his office hours next week. He then extended birthday wishes to a Louisville (MS) High School student and began the day's lesson.

Even though the telecast was prerecorded, the students participated with Dr. Ito. The teacher wisely had adjusted to the prerecorded setting with comments such as, "I hope everyone is practicing with me." The students used their handouts--an original of which had been sent via the TI-IN system printer and had been copied and distributed by the facilitator--as lesson outline guides. They interacted freely and positively and helped each other with

pronunciation problems. Some of the students indicated in the later interviews that they were usually more vocal than they had been during our visit; typically they had competed to see who could answer the question or give the correct translation or pronunciation first, but the combination of the prerecorded telecast and our presence had apparently quieted them down somewhat. Ms. Chaltry later noted that all the students had been doing well in the class, except for one student who was pronounced to be "a little slack."

Dr. Ito then asked the students to trade their homework assignments and grade them. In fact, Ms. Chaltry had already collected, graded, and returned the students' homework at the beginning of class. Unlike other schools we have visited, Ms. Chaltry always personally graded the homework assignments. Since students at other sites had confessed to some dishonesty in peer grading, it would appear that having the facilitator do the grading is preferable.

The class we observed was earmarked by lively, productive, student interactions. For example, the students often helped each other with translations, even when Dr. Ito or Ms. Chaltry had not specifically asked them to do so, and they frequently collaborated on specific answers to Dr. Ito's questions. Moreover, Ms. Chaltry sometimes asked for the English translation of Japanese phrases or words, even when such was not solicited by Dr. Ito.

This class also had quite a bit of variety. For example, at one point, Dr. Ito used 5 1/2" by 8" index cards to show students Japanese characters, and he asked the students to verbally identify and translate them. He also screened the second 15-minute portion of a film, which presented segments on Japanese industry (e.g. shipping, factory work) and a segment on sword making that the students particularly seemed to enjoy. [The first 15-minutes had been shown the previous day.] All but one of the students seemed mesmerized by the film. After the film, Dr. Ito reminded the students that the test over lesson 15 would be the next Friday (although they were already on lesson 16). This was a point that the students later reported to be very frustrating--being tested on a lesson after they had already advanced to the next lesson. Some students were to tell us that they found this practice to be "confusing and somewhat unfair."

Student Interviews

The students had generally chosen to take **JAPANESE I** because they thought it would be "different and interesting." One student noted that her father spoke Japanese, which served as an extra incentive. Others seemed to be looking to the more practical applications of the language: One student reportedly thought that knowledge of the language would be an important skill to have for future employment; another supported this reasoning, stating that he wanted to learn Japanese because the Japanese are in the

lead in the business industry, making it necessary for "Americans to get to know the language"; one student said that he was intrigued with the Japanese language and very interested in the interactive television technology. Most students reported that they had learned at least as much or even more in this telecourse as they typically had in their regular classes; however, one student voiced a dissenting opinion, noting that he had not learned as much as in a traditional classroom setting, but that he still had learned "a lot" from Dr. Ito.

The students reported being comfortable with the telephone handset, but they admitted that usually the same two or three students called in, and then only when Dr. Ito asked a question or specifically instructed them to call. The students said that they always asked permission from Ms. Chaltry before calling in. Although the students found the questions from other sites to be helpful, they have found other sites' playful antics over the air to be disruptive. Ms. Chaltry noted that some schools had called in and giggled but not responded to Dr. Ito, and they had also called in and made funny noises over the air and then hung up, something we had not witnessed in our observations of **JAPANESE I** or any other TI-IN United Star Network courses. Ms. Chaltry added that these incidents had been few and isolated. The students mentioned that there had been a little static on the line when sites had called in, and although the static had not made it impossible to understand

the other students, the classes would have been better and more enjoyable without this disruption. The students reported being upset by their seven days without the live, interactive class. One student summed up that situation as "rough." However, all of the students agreed that they would take another TI-IN course, either JAPANESE II or another subject.

The students all reported liking Dr. Sukero Ito, and all agreed that he was a good teacher, although some noted that he sometimes went a little too fast. Phrases such as "one of the best" and "like a good friend," were used to describe him. They seemed to particularly like his "key points" sections, which served as a review of the major points covered that day. They also noted that Dr. Ito's tests were fair, but they strongly urged that in the future he give tests contiguous with the unit (i.e., the test for Lesson 15 directly after finishing Lesson 15).

The students spoke very highly of their facilitator, Ms. Chaltry. The enthusiastic Ms. Chaltry had been assistant principal of Choctaw County High School for eight years, and she was described with such phrases as "very good," "great," and "helpful and interested." The students indicated that she had kept up with their progress and, if their scores/grades dropped below normal, she checked to see if they had a problem. They noted that she had encouraged them to study and to participate in class and interact with Dr. Ito.

When queried about how the school had promoted the TI-IN program, one student stated that the school had been supportive of the program, encouraging them to take the courses and giving them time out of study hall and other classes for makeup work or special projects. Another student expressed the opinion that Ms. Chaltry was responsible for the majority of the support that the program had received, and she indicated that the school should have done more to support the program. A third said the school had been supportive of the technology and had encouraged the students to excel in the program. It would appear that Choctaw County has expended at least a modest amount of effort to make the Star Schools program work.

ANATOMY AND PHYSIOLOGY

Interview with Facilitator

The second class we evaluated at Choctaw County High School was the 11:00 a.m. TI-IN United Star Network **ANATOMY AND PHYSIOLOGY** class. As previously indicated, Ms. Camelle Thompson was the facilitator of this class. Ms. Thompson was also the school's librarian, holding degrees in Biology as well as Library Science. A certified science teacher, she said that she believed strongly in the TI-IN program, but she admitted to being "a little frustrated" and negative toward **ANATOMY AND PHYSIOLOGY** instructor Marilyn K. Stephens. She reported that Ms. Stephens was a good, competent, and "very knowledgeable" instructor and she apparently had no problem with either the course content or

pedagogical technique per se. However, she thought Ms. Stephens spent far too much time "getting started" (i.e., conversing in "happy talk" with the students), which took away from actual "class time." [It should be noted that this is a feature that was touted as very positive by facilitators and students at the other **ANATOMY AND PHYSIOLOGY** classes we observed.] Ms. Thompson admitted that getting to know the students was a "good idea," but she indicated that it took too much of what she called "prime learning time." The students, however, disagreed and reported that they appreciated Ms. Stephens' attempts to get to know the students at each site. They reported feeling that Ms. Stephens really knew and cared about them. Even Ms. Thompson admitted that the students "love it." Ms. Thompson said that she had talked personally with Ms. Stephens and had encouraged her to defer the "fun time" until the end of the class, but she indicated that her requests had apparently carried little weight. Happy talk aside, Ms. Thompson noted that Ms. Stephens had done a "super job talking over the satellite," and that Ms. Stephens "made the students feel like they were right there with her." She also observed that Ms. Stephens' labs were "real good and well structured." She did claim that the lesson plans "did not always agree with what we do . . . if a lab pops up, I can't leave 16 students to go get tools." She said that the facilitator must be informed in advance as to what the lesson will be each day so that he/she can

prepare for it. Ms. Thompson also noted a slight scheduling problem. The change-of-class bell had rung right before the **ANATOMY AND PHYSIOLOGY** class, which left the students and her little time to set up for the day's class. And, the **ANATOMY AND PHYSIOLOGY** class had ended five minutes after the bell indicating a change in classes, which had made the students late for their next class. Ms. Thompson also had some negative comments about the particular group of students in this class, saying that they had not been her best group and that they had their priorities out of order. She thought that this had been the cause of some of the classes' purported disciplinary problems.

Class Observations

The sixteen students in the **ANATOMY AND PHYSIOLOGY** class were all seniors--eight black females, two white females, three black males, and three white males. Eleven of the students were in BioPrep and were required to take Anatomy and Physiology to graduate. The remaining five students had enrolled in **ANATOMY AND PHYSIOLOGY** because they wanted to. Ms. Thompson and Mr. Underwood agreed that this year's BioPrep students had not been one of their best sets. Nevertheless, Ms. Thompson reported that three had received college scholarships for their academic achievements. They predicted that the current eleventh graders would be an excellent class of graduating BioPrep students, and they saw real potential in the current crop of tenth graders.

The students in **ANATOMY AND PHYSIOLOGY** were a little more boisterous than those in the **JAPANESE I** class. They talked among themselves during the class and had to be quieted by Ms. Thompson. A portion of their misbehavior might be appropriately attributed to the facilitator, because she did not appear to be as motivated, as directive, nor as authoritative as Ms. Chaltry. It might be that the students had picked up on this fact and had taken advantage of it, as students at this age are inclined to do. Ms. Thompson noted that 14 of the students were doing well in the class, and the remaining two were not. She explained that these two latter students had all the credits required for graduation and appeared not to care about this class. She added that sometimes they had slept during the class (we had first-hand evidence of this) and had ignored her attempts to keep them alert.

For a portion of the class, Ms. Stephens had a guest speaker, a pharmacologist who also happened to be her husband. The static two-shot presentation was considered boring by the students, although the students revealed that they usually liked and learned from her guest speakers. Only a few students took notes. One student that sat in the back went to sleep, and others became distracted, even resorting to doing their homework. During the presentation, the Stephens tag team did a good job of using electronic graphics to depict the names and structures of various drugs. Key words were displayed via graphics on the lower

portion of the screen. Ms. Thompson immediately wrote these key words on the chalkboard. Then students from other sites called in and asked questions about how certain drugs worked. During the presentation, an announcement was made over the Choctaw County speaker system. The audio on the TI-IN monitor had to be turned down so that the class could hear the announcement. Needless to say, this disrupted class momentarily. Also, static intermittently came from the television set. We could not tell how well the handset worked, because no attempt was made to talk to the teacher on the day of our visit. The facilitator sat in the front of the room and did not interact with the students unless they asked her a direct question.

The remainder of the class was spent on the human brain and how the brain rationalized thought. More students began to take notes during this segment. Ms. Stephens used a plastic model of the brain to help demonstrate her points. The model was easy to see and the different parts of the brain were clearly identified. At 11:45 a.m., the change-of-class bell rang again. The noise from outside the classroom was audible but did not appear to unduly distract the **ANATOMY AND PHYSIOLOGY** students, who seemed to pay careful attention to the lesson until the telecast concluded.

Student Interviews

The students were in general agreement that they had learned more in the TI-IN **ANATOMY AND PHYSIOLOGY** class than

they typically did in their traditional classes. They felt that the TI-IN class had been more challenging and that they had had to be highly self-motivated in order to succeed in the class. The students uniformly complimented Ms. Stephens on her ability to motivate students and on her overall teaching ability. They obviously liked and respected her very much. They considered the tests fair and noted that they had had to study hard to make a good grade. Although most of the students had been required to take **ANATOMY AND PHYSIOLOGY**, several noted that they would have taken the TI-IN course anyway. The reasons cited were diverse. For example, one expressed a desire to go into medicine, another wanted to be a veterinarian. The students had not found the large number of students in their interactive classroom distracting, largely because they all knew each other and had the same BioPrep classes together. The students reported that their school was, as a whole, very supportive of and interested in the TI-IN course. Student comments about the facilitator were mixed but leaned heavily toward the negative. Typically, she was described as not being overly interested in the students' progress and as having left the motivation, for the most part, to the students and the teacher. On the positive side, one student mentioned that she had helped with information from lectures that they had not understood.

Regarding the TI-IN equipment, several students mentioned the fact that they had had to do a lot of makeup

work because of technical difficulties, but overall they felt that it had been worth it, because the class had held their interest (most of the time), the quality of teaching had been better than in other classes; plus TI-IN had offered them things not normally found at the school that would aid in their preparation for college. The only improvements the students suggested were to have the TI-IN classroom located in a science lab, and to slow down the delivery of information. Several students noted that Mr. Underwood, their principal had been especially supportive of TI-IN and had taken special care to see that the class had what it needed, and that things were going well.

Concluding Note

In most ways, Choctaw County High School appeared to have been a model site for the TI-IN United Star Network. The only problems we noted had to do with slight scheduling misfits, which the school seems to have adjusted to rather well, and a slightly negative attitude on the part of the **ANATOMY AND PHYSIOLOGY** facilitator. Certainly Mr. Underwood and Ms. Chaltry have been ideal administrators for the TI-In site, and they have been avid cheerleaders for the TI-IN United Star Network program, which, as a result of their support, seems to have operated smoothly and accomplished a great deal.

Site Visit

ANATOMY AND PHYSIOLOGY and **SPANISH III**

Beecher City Junior and Senior High school

Beecher City, IL

On April 20, 1990, the TI-IN United Star Network evaluation team of Lisa Madsen, Karla Schweitze , and Lisa Scott visited Beecher City Junior and Senior High School in Beecher City, IL. Beecher City is a small farming community located in the southeastern corner of the state. The 500 residents are mostly farmers, although some residents reportedly commute some 16 miles north to work at the Caterpillar Tractor plant in Effingham. Beecher City has an enrollment of 183 in the Junior and Senior High grades 7-12. The student population is all white, and minorities are exceedingly rare throughout the area. In fact, minorities are so few in number that some of the students were able to enumerate all of the minorities in the district in their interviews. Two black girls lived with otherwise white families in Effingham, and a "handful" of Native American Indian families resided nearby, although no Indian children apparently were enrolled in the school district at the time of our interview.

Interview with Principal

Even though only one-sixth of the students live in households which earned less than the national poverty level (i.e., they receive either free or reduced cost lunches),

Principal Thomas Talbott contended that Beecher City is a poor community. Other public schools in the district apparently have charged students up to $150 for books and activities; but, Mr. Talbott said, "people cannot afford such charges," and Beecher City offered students books and activities at no extra charge. He noted that Beecher City was in dire need of and would like to build another school building containing three regular classrooms and an all-purpose room. The school had raised $350,000 for the project, but residents were going to have to pass a referendum to collect the remaining $130,000 needed in order to construct the building.

Mr. Talbott called TI-IN "a great idea" and noted that his school was "pleased to have TI-IN." Beecher City had utilized many of TI-IN's enrichment and in-service (staff development) programs, even at the grade school level. He complimented TI-IN on the speed with which TI-IN had sent Beecher City a replacement videocassette recorder after their VCR had been stolen from the TI-IN A/V cart; it had arrived in two days. The same burglar allegedly had stolen nearby Cowden High School's TI-IN VCR also; he was subsequently arrested and at the time of our visit was awaiting trial for burglary.

Beecher City has had several major problems with TI-IN. Mr. Talbott reported that he thought that TI-IN had not understood or recognized their "small school situation." He cited several examples. First, the Beecher City school had

subscribed to two TI-IN United Star Network courses--**ANATOMY AND PHYSIOLOGY** and **SPANISH III**--based on TI-IN's published 1989-1990 telecast schedule; then they had formulated the rest of Beecher City's class schedules around the TI-IN schedule. Mr. Talbott contended that before classes had even started in the 1989-1990 school year, TI-IN had changed the telecast time for **SPANISH III** from the afternoon to the morning. Beecher City had not had time to change their overall class schedule and had decided to let the three students in the class view as much of the live telecast as possible (about 35-40 minutes) and tape the remainder of each day's class for viewing later in the afternoon. On days in which the **SPANISH III** students had had tests, the students had been allowed to be 15-20 minutes late for their next class. Beecher City had continued under these conditions for the first semester of the school year, then had dropped their subscription to **SPANISH III**. Mr. Talbott said that it had all become too much when the **SPANISH III** teacher, Ms. Susan Altgelt, either did not want to give Beecher City's **SPANISH III** students part of their grade or wanted to penalize the students because they had not called in when asked and/or had not called in enough. Mr. Talbott said that the situation with part live/part taped classes had been hard enough on the students, and he could not see hurting the students' grades over something over which they had had no control. He apparently saw it as TI-IN's fault for changing the schedule after enrollment had been

completed. He was less than pleased with the way this situation had materialized and had been handled.

Second, early in the school year Beecher City had experienced a problem receiving TI-IN's transmission. Mr. Talbott said that Beecher City had had a hard time getting the problem solved. TI-IN had said that they would send a technician the next day. Beecher City had reported the problem every day when it requested tapes for class. After one week, a technician finally arrived to make an adjustment to the satellite dish. [Mr. Talbott said that he had later discovered that the delay had not been TI-IN's fault *per se*. TI-IN had called a subcontractor in Florida to handle Beecher City's problem in a timely manner, but the subcontractor had taken one week to hire a company in Illinois to handle it. TI-IN had no connection with nor had they had any contact with the Illinois company. Nonetheless, Mr. Talbott saw this as a TI-IN communication problem.]

Third, Mr. Talbott voiced his confusion and displeasure over how long Beecher City had been supposed to receive TI-IN free (i.e., to receive the TI-IN United Star Network). Mr. Talbott said that he had been "misled." He noted that Beecher City's TI-IN satellite had not been installed until April 1989, and it was his understanding that Beecher City would receive TI-IN for free for two years from that date. However, he had later discovered that TI-IN's programming and services were to be free only for the two years of the

existence of the TI-IN United Star Network as a separately funded Star Schools program, not from the time of the installation of equipment at each school. Mr. Talbott contended that he was not particularly upset about the misunderstanding, just displeased that things had not been explained more clearly in the first place. He said that Beecher City would certainly pay in order to continue receiving the programming, because the program had been "beneficial." He noted that Beecher City wanted to subscribe to AP English but added that they also needed to continue subscribing to **ANATOMY AND PHYSIOLOGY**, a course which was also accepted as college credit and had built up considerable interest in the student body. Unfortunately, the two courses apparently are being offered in the 1990-1991 TI-IN telecast schedule at the same time. He said that Beecher City would have to make a choice.

Fourth, TI-IN had not wanted one of Beecher City's seniors to take a TI-In course without a facilitator. Mr. Talbott said that Beecher City had a very talented art student who had wanted to take TI-IN's art history course. Cowden High school had agreed to tape the program for the student, who was already taking a traditional Art III class at that school. According to Mr. Talbott, the art teacher at Cowden High School had praised the student's work and had said that she could see a "great change" in the student's art. The student planned to study art in college.

Four students were enrolled in Beecher City's TI-IN United Star Network **ANATOMY AND PHYSIOLOGY** class during the Spring 1990 term. However, only two students were present on the day of our visit. One student, a white male, was in Washington, D.C., the week of our visit to accept a National Daughters of the American Revolution (D.A.R.) award, and another, a white male who was running for national FHA president, was in the hospital with pneumonia.

The facilitator of the **ANATOMY AND PHYSIOLOGY** class was Rosa Kemmy. Ms. Kemmy, a pleasant, personable, white female in her late twenties, is a certified health and physical education teacher. The two female students arrived before Ms. Kemmy and quickly set the VCR to tape the class for the students who were absent. The students also turned on the printer to receive any incoming materials from Ms. Marilyn Stephens, the TI-IN United Star Network **ANATOMY AND PHYSIOLOGY** teacher. The students met in a regular classroom. The TI-IN A/V cart with telephone handset was located in the back of the room, so the first thing the students did was to turn their desks 180° toward the rear of the room in order to view their program. Ms. Kemmy arrived just after the students. Mr. Talbott introduced us and then left the room. Ms. Kemmy apologized for her attire, a jogging suit, and explained she had just finished instructing a gym class.

Interview with Facilitator

Ms. Kemmy said that Ms. Stephens had been "doing a good job." She mentioned that initially she had thought that Ms. Stephens talked about herself too much, but later she realized that students liked for Ms. Stephens to talk about herself. It made the students "feel like they knew her." Both students agreed wholeheartedly. Ms. Kemmy mentioned that the students were somewhat secluded from people of different ethnic and regional backgrounds, so some of the latent benefits of the interactive telecourse had been that it had permitted the students to at least hear different regional accents. She noted that at first the students could not understand some of what Ms. Stephens had said because of her accent, but later on the students had come to really like listening to their instructor's voice.

Ms. Kemmy praised the interactive TI-IN process as being extremely effective in small group situations. She suggested that having small groups had allowed the students the freedom to talk as well as to ask and answer each other's questions. She contended that students had really loved the labs, particularly the lab on the heart organ, in which students dissected cow hearts. Ms. Kemmy considered it a little difficult to bring lab materials into a regular classroom, but the students had been very helpful, and a bathroom in the vicinity made clean-ups easier. Ms. Kemmy has used some of the information from Ms. Stephens' class in

her eighth grade health class, and she gave us copies of articles that Ms. Stephens had distributed.

Ms. Kemmy's only complaint about TI-IN was basically an administrative problem at Beecher City and had stemmed from the unexpected amount of work necessary to facilitate the class. Mr. Talbott had told Ms. Kemmy that facilitating the interactive class would be like "babysitting" the students. So, she had agreed to give up her one and only planning period to facilitate the class. However, there had been a great deal of work involved in grading homework assignments and short tests, and in preparing material for class distribution. She shared with us copies of weekly facilitator report forms and a sample lesson plan for a two-week period to illustrate her point. She claimed that being a TI-IN facilitator was anything other than babysitting; in fact, her facilitator duties had left her no "prep time" to plan or get ready for any of her other classes. But she admitted that she had enjoyed facilitating the class and working with the students. Particularly valuable had been the fact that by facilitating the **ANATOMY AND PHYSIOLOGY** class, she had been able to keep up in a painless way with the latest health information, which she, in turn, had been able to use in her health class. Ms. Kemmy reported that she would like to facilitate the class next year, if she could be assured of a little time in her schedule for planning. Ms. Kemmy's only complaint about TI-IN directly was that students had had to wait three weeks for textbooks.

Class Observations

As class began, the students talked freely among themselves and with Ms. Kemmy and made candid observations about the day's class. They noted that Ms. Stephens had changed her background set from a dull gray matte to a bright symbol. The students agreed among themselves that the background was less static and more aesthetically pleasing than the matte had been. The day's lesson was on the human eye and how the pupil reacts to stimuli. Ms. Stephens' lesson was clear and precise, and she used a colorful model very adroitly. She also prompted students to try several different hand and eye coordination exercises as a tactile way of demonstrating her points. The Beecher City students performed the exercises and tried some creative variations on the original exercises. Ms. Kemmy suggested different variations also and asked the students questions about what they had seen. The students made no attempt to use the telephone handset on the day of our visit.

Student Interviews

In general, the students reported that they had liked their interactive telecourse very much. They had really liked Ms. Stephens and had enjoyed taking her class. They noted that she had related well to the students; had tried to get to know the students at each site; had held their interest; really cared whether her students understood science; and had discussed difficult subjects in depth and very clearly. The students also indicated that she knew the

subject matter well and that they had learned more in the TI-IN class than in their regular, traditional classes. They noted that some of her tests had been hard, but they also considered them to be fair. They added that she had been "pretty thorough" in reviewing tests.

The students had also like their facilitator "very much," and they noted that she had been extremely interested in their progress. They indicated being pleased that she had allowed them to help with the equipment and that they could turn to her for help if needed. They considered their school to have been very supportive of the TI-IN program, and other students and their other science teacher had frequently talked to them about their progress in the TI-IN class. They noted that interested students had been asked to sign up for the TI-IN course at the end of the previous school year. Those who had been upcoming seniors and "A" or "B" students had been called during the summer and invited to enroll in the course in the fall.

Both students interviewed were very glad that they had chosen to take the TI-IN **ANATOMY AND PHYSIOLOGY** course, and both they and their supervisor assured us that the two absent students held very similar views and that their experiences in this class had been very positive.

Concluding Note

Although the vestiges of Beecher City Junior and Senior High School's disappointment with the **SPANISH III** class still put somewhat of a damper on the administration's

enthusiasm for the TI-In United Star Network courses, it was clear that their overall assessment of this Star Schools experience had been extremely positive. Certainly the students' and facilitator's appreciation for **ANATOMY AND PHYSIOLOGY** was abundantly clear.

Site Visit

ANATOMY AND PHYSIOLOGY and **PHYSICAL SCIENCE**

Jemez Valley High School

Jemez Pueblo, New Mexico

TI-IN United Star Network evaluators Dr. Jennings Bryant and Steve Rockwell arrived at Jemez Valley High School at 9:30 a.m. on Thursday, May 3, 1990. This is a public school situated adjacent to the Jemez Pueblo Indian Reservation. This reservation is located in the foothills of the Jemez Mountains approximately 45 miles north of Albuquerque. Five hundred students are enrolled in grades 1-12 of the Jemez Valley School District, with approximately 75 of those attending the high school. About one-half of the student population consists of Zia and Jemez Indians, with the remaining half split between White (25%) and Hispanic (25%) pupils. Jemez Valley is the only public school in this 50-mile diameter district. The main employment and revenue sources in the area consist of the U.S. Forestry Service, the state highway department, the Jemez Valley schools, various cottage industries, and a few service vendors. A number of families purportedly subsist on welfare.

Interview with Principal

When we arrived at the school, we sought out the principal, Mr. Jim O'Choa. We were ushered into his office and he promptly and matter-of-factly let us know that he did

not welcome us, although he had agreed to see us. From his initial comments, we received the impression that he thought that we were there to evaluate his school and his staff, and his demeanor was hostile, defensive, and uncooperative. We tried to explain to him that we were evaluating the TI-IN United Star Network programs and not him or the school. He then seemed to believe that we were full-time employees of TI-IN, no matter how many times and in how many different ways we tried to explain the situation. Throughout the interview, Mr. O'Choa continued to act in a hostile manner toward us and TI-IN, repeatedly saying that TI-IN needed to work more closely with his school in scheduling classes and in communicating future plans. He also declared emphatically that the classes offered were not always appropriate for his school. When he became winded from his diatribe, and when it became apparent that he was not prepared to listen to fact or reason, we excused ourselves in order to view a TI-IN class in progress and to speak to the facilitator. We were later told by the site coordinator that Mr. O'Choa was the school's fourth principal in two and one-half years and that the first time he had examined the TI-IN schedule for the upcoming year was immediately prior to our visit. The coordinator suggested that Mr. O'Choa had developed his negative attitude about the whole program without making any real attempt to understand the system.

Interview with Facilitator

The facilitator, Linda Grider, was quite a contrast to Mr. O'Choa. She was helpful and extremely pleasant. She was obviously an intelligent individual, as well as an independent thinker. Although she did have some problems with TI-IN, overall she thought that the TI-IN United Star Network in particular, and distance learning in general, provided otherwise unavailable and unaffordable opportunities for the Jemez Valley students. Ms. Grider was not a certified teacher and worked for the school on a substitute teacher's wages; she facilitates six TI-IN classes--Spanish, German, French, Sociology, Physical Science, and Anatomy and Physiology. Her biggest problem with TI-IN, at least the one she emphasized the most emphatically, was the delay in getting the course grades back to the schools. She also felt that TI-IN was not being as cooperative as possible in sending out tapes of classes missed because of school holidays, lessons that the school had not taped due to equipment malfunctions. She insisted that TI-IN had refused her requests to send them some of the tapes that Jemez Valley was missing. [In the many other instances of problems like this we have encountered, we have never heard of any problems with receiving missing tapes, so we have to assume there was some sort of communication problem.] Ms. Grider also said she felt that TI-IN should use the printer more and the mail less. She noted that the **ANATOMY AND PHYSIOLOGY** instructor was the only one who used

the printer "correctly" or on any sort of regular basis. Ms. Grider suggested that a fax machine might be included in the A-V package if the instructors were not going to use the printer.

She also told us that while a few Jemez Valley faculty members thought very highly of TI-IN, there was a lot of resentment toward distance learning in the school. Various members of the faculty felt somewhat threatened by the technology and considered it a waste of money. The school's chemistry and physics teacher apparently holds such attitudes, since this teacher reportedly was not always cooperative in helping set up lab experiments for the TI-IN courses. Ms. Grider also reported that there had been a few instances of weather blackouts and that scheduling the makeup work for these instances was a problem. It seems that New Mexico schools do not have study halls, plus they have a rigorous state-mandated curriculum, so there are no free periods for the students to make up any missed work. This lack of free periods also causes problems in completing some assignments. For instance, in one TI-IN class, the teacher apparently gave the assignment of making a video presentation of the area in which the students lived. There was no class time assigned for this project and very limited access to recording equipment, so the students had to be dismissed from other classes and thereby had a hard time completing the project. Ms. Grider also said that the land-line was constantly busy, making it is very difficult to get

through to the various teachers. [This is the first instance of any problems in this area that we have encountered. Since we have called TI-IN teachers ourselves on several occasions with excellent success, it may be that Jemez Valley has a problem with its long-distance service.]

She also said that the classes, especially Mr. Marshall's **PHYSICAL SCIENCE** class, needed to be better organized. If the teachers gave sufficient warning of what labs were upcoming, the facilitator could make arrangements to set up these labs well in advance and thus avoid any scheduling conflicts in the lab. She suggested that a semester lab plan would be helpful. She also complained that Mr. Marshall's constant requests of the facilitators to give facilitator points is a problem too, because the facilitator must pay attention to the whole lesson in order to know when to grade the students on these points.

Most of the Jemez Valley High School students, she suggested, were sufficiently self-motivated to make the Ti-IN United Star Network classes a success. Some were taking TI-IN courses in order to fulfill a second language requirement and were thereby motivated to do well in order to graduate or go on to college. She also indicated that a few distance learning students were not really serious about the TI-IN courses and caused slight behavior problems in the classroom. On the other hand, Ms. Grider reported that she had also talked to many other students who were not currently enrolled in TI-IN courses who were very interested

in taking TI-IN classes in the future, and she was optimistic for the long-term success of distance learning for schools such as Jemez Valley.

Interview with Resource Director

We spoke next to the school librarian, Paul Whittinger. Although he was not affiliated with the TI-IN United Star Network program in any official capacity, he nonetheless asked to speak with us, ostensibly because he felt the desire to work with the program in order to, in his terms, improve it. It seemed to us that Mr. Whittinger was Principal O'Choa's confidant, and Mr. O'Choa had apparently talked with Mr. Whittinger to try to determine some of the details of the TI-IN system. This seemed to be the source of some of Jemez Valley's problems, because neither one knew much about the program. Mr. Whittinger did not even know about the in-service training programs offered by TI-IN, and he expressed considerable interest in them when they were mentioned. Nonetheless, he seemed confident that TI-IN was not the right program for Jemez Valley, because the courses he thought were needed were not offered, and he proposed that TI-IN's schedule was unworkable for "his" school. He was actively pursuing other distance learning purveyors in order to, in his words, improve the program, and he tried to pick our brains regarding alternative curricular learning options. For once, ignorance really was bliss!

Interview with Site Coordinator

When we spoke to the site coordinator, Bob Strain, we began to see more clearly some of the problems associated with the bureaucratic structure and administrative personnel in the Jemez Valley school. Mr. Strain seemed bitter towards the school's administrators, especially the principal, possibly because his job seems to have recently been downgraded. Nonetheless, he was extremely hospitable and offered us valuable insights into the problems at the school and the history of TI-IN in the school. He has been with the TI-IN program since it has been at Jemez Valley, but has experienced a diminished role in the program since Ms. Grider came aboard. He suggested that Mr. O'Choa was too new at his job to know what was really going on with the TI-In program and he intimated that Mr. O'Choa has erred in listening to Mr. Whittinger, who did not really know himself what was going on. Mr. Strain seemed to think that there was a conflict in the perception of what purposes TI-IN served in their school, and he noted that the current administrators did not have a comprehensive vision of the various dimensions of the program. For example, he told us that although TI-IN provided some excellent teacher development courses, and although Jemez Valley critically needed such courses, no in-service training was currently offered by the school. He added that many of the more attractive features of the program were being overlooked. It was clear that Mr. Strain felt a strong affinity to

distance learning and to TI-IN, but it was also clear that he thought he was "on the outs" with the current administration.

TI-IN Classroom Setting

Because Jemez Valley subscribes to so many TI-IN courses, a room had been designated the TI-IN classroom. Unfortunately, the 20' x 9' interior room, situated off of an attractive library/A-V center, was not particularly well suited for this purpose. The artificial lighting was adequate, but the cinderblock walls, hard floors, and metal furnishings created an overly "lively" audio environment. Ms. Grider had done what she could to make the room useful and appealing (e.g., TI-IN Bulletin Boards), but the space was too cramped for adequate viewing, and it was located some distance from the science equipment needed for **ANATOMY AND PHYSIOLOGY** and **PHYSICAL SCIENCE**. In the **PHYSICAL SCIENCE** class, which had four pupils, one pupil sat so that the monitor, although not exactly in back of her, was located over her left shoulder. Some environmental manipulation definitely was in order.

ANATOMY AND PHYSIOLOGY

Observation

Although we arrived at Jemez Valley High School in plenty of time to observe the **ANATOMY AND PHYSIOLOGY** class, Mr. O'Choa was insensitive to our gentle requests that we observe that class while it was in progress and talk to him

later. When we finally made our way to the classroom, the day's lessons were nearly over. We observed the single student and the facilitator for a few minutes, enough to note that the student was paying careful attention to the lesson and the facilitator was being quite observant also. In a couple of instances, the student asked Ms. Grider a question, and the facilitator quietly answered. Ms. Marilyn Stephens, the TI-IN teacher, appeared to be very focused on the lesson and seemed to be doing an excellent job covering a lot of information in a pleasant and effective manner. She was also quite patient when dealing with student questions. She averaged nearly a call a minute during the last 8 minutes of the class.

Student Interview

The student, Kimberly Gachupin, was a poised, well-dressed, attractive, 18-year old senior--a female Native American. She reported that she was taking **ANATOMY AND PHYSIOLOGY** because she wanted to be a doctor. Although outnumbered by evaluators, Kim was extremely relaxed and confident during the interview. She actually seemed to enjoy herself.

She liked the TI-IN system and reported that she would like to take other courses via this system, especially Marine Biology. She gave the class an "A" and said that she liked the teacher, Marilyn Stephens, very much. In fact, she spontaneously used words such as "admire" and "respect" in describing her feelings for the teacher and said that she

would "love" to have more teachers like her. She reported that Ms. Steph ns was "better" than most of her classroom teachers. When asked about Ms. Stephens' strengths, she mentioned her wit and humor and the fact that Ms. Stephens knew her material well, and she added that her teacher was an excellent presenter. When asked about the teacher's weaknesses, she could not think of one. She thought that the tests had been good and had been graded fairly, and she reported that Ms. Stephens had returned grades promptly (in about a week, she said). Her only complaint was that some of the labs were paced too quickly and had required equipment that was unaccessible at Jemez Valley.

Ms. Gachupin was also very positive about her facilitator. She noted that Ms. Grider always had the material ready for class, was very helpful during the lessons, and was quite interested in her personally as a student. She definitely would want Ms. Grider as a facilitator for other TI-IN courses. When asked if the school was supportive of TI-IN and had promoted the TI-IN classes, she said that Mr. Strain certainly was and had.

We talked with this student for several minutes, trying to obtain other insights into the Jemez Valley situation, but it was clear that she had no special knowledge of any shifts in the school's attitudes toward TI-IN. We came away from the interview hoping that Ms. Gachupin would be able to become a very successful doctor and thinking that **ANATOMY AND PHYSIOLOGY** may have helped her achieve her goals.

PHYSICAL SCIENCE

Observations

The TI-IN United Star Network **PHYSICAL SCIENCE** class at Jemez Valley contained four students, three males (two Native American Freshmen, both age 15, and an Hispanic Freshman, age 15) and one female (an "Anglo" Freshman, age 13, whose parent was the chairman of the school board). All of the students were well-dressed (extremely well-dressed!) and were very neat and attractive in appearance. They all seemed to be intelligent, poised, and loaded with personality.

During the first few minutes of the class, the students were in and out of the room a lot, and they seemed to have a difficult time paying attention. Part of the problem may have been the fact that David Marshall, the teacher, seemed to be having trouble getting started that day. In fact, one of the students remarked, "Man, is he ever having trouble getting the ball rolling." A few minutes into the class, Mr. Marshall said that he wanted to hear some "new voices" today, and the Jemez Valley students immediately reached for the hand-set and placed it in the middle of the table. One particularly lively student added, "Watch us smoke!" They seemed quite comfortable using the handset--all of them.

Mr. Marshall continued at a slow pace, and his efforts at humor were falling flat that day, at least with this audience. The students were noticeably antsy, and one noted, "He's making me nervous!" In contrast to her

attentiveness during the last class (actually, classes, since we had observed some of the TI-IN Spanish class also), Ms. Grider was also quite distracted. Finally, she got up and excused herself so that she could make some copies for an upcoming class. The behavior of the students did not change noticeably in her absence (of course, two adult evaluators were present).

Mr. Marshall used an excellent video disk presentation during a portion of the class, and that captured and recaptured the Jemez Valley students' attention. Otherwise, the teacher's command of the material for this lesson, a portion of which was review for an upcoming test, was less than impressive. Although some concepts were explained quite well, other explanations were very weak. Our students were particularly peeved when he mispronounced (to our ears, only slightly) the names of Jemez Valley and To'Hajiilee-He--two New Mexico schools. Based on prior observations, one of us (Jennings Bryant) had bragged to the other (Steve Rockwell) about the quality of Mr. Marshall's teaching, but that previously-observed excellence in distance teaching was certainly not in evidence on this particular day. Among the several problems we noted were that:

(1) the lesson units were not well organized;

(2) far too much social time was allocated;

(3) some of the teacher's words were garbled;

(4) the graphics were not well prepared (other than the excellent video disk lesson);

(5) the audio was so low during the first video disk segment that students at other sites called in;

(6) Mr. Marshall made at least two factual errors (e.g., saying "drinking" versus "distilled" water); and

(7) Mr. Marshall used a swimming pool metaphor to which our students obviously had trouble relating.

All in all, this was a very poor lesson. Not only did we know it, the students and facilitator knew it and talked about it openly.

Student Interviews

We interviewed the students individually in the adjacent resource room. They were rather consistent in their responses to our questions. All of them liked Mr. Marshall and had been very pleased with the quality of his instruction. One student said that Mr. Marshall was "cool." Another added that he was "real interesting and nice." A third student noted that he usually was much better organized than what we had seen, although he did say that Mr. Marshall rambled too much at times. The fourth just said that he liked Mr. Marshall "a very lot."

The facilitator, Ms. Grider, got rave reviews. Each student answered every question asked about her very positively. It was obvious that she is a gem, and the students knew it.

The **PHYSICAL SCIENCE** course was also graded positively by the class (1 "A", 3 "B's"), and they noted that they had learned "at least as much" (1 male, 1 female) or "more than" (2 males) they had in their regular courses. Two of the students reported that most of the class presentations had held their interest "most of the time"; two others reported that their interest had been maintained "some of the time." All reported that they would take another TI-IN class if given an opportunity to do so.

A persistent complaint of all four students was that tests were not returned promptly. A subsidiary complaint was that their TI-IN course grades were so late in being sent to Jemez Valley that they had received a grade of "Incomplete" (I) on their report cards in **PHYSICAL SCIENCE**. One student reported that his father had almost beaten him up for getting an "I," which he judged to be worse than an "F." In days of readily available electronic mail and facsimile transmission, it seems that something could be done to rectify this common complaint.

<u>Summary Comments</u>

Some very positive things were happening in the TI-IN classroom at Jemez Valley. Students appeared to be learning a great deal, liking their TI-IN courses and teachers a lot, and generally having a very positive learning experience. Clearly geography and their rural environment were not getting in the way of their obtaining a good, specialized education.

On the other hand, little or no word of this educational success was getting through to the front office! What the key administrative gatekeeper saw, or chose to see, was an educational failure and an administrative nightmare. Some of the students had recently become aware of the Principal's disenchantment with TI-IN, and they were concerned about this, apparently because from their perspective TI-IN courses had been a very positive part of their educational experience, and they did not want to loose it. In fact, when asked, "What could have been done to make this course a better learning experience?," one student succinctly stated: "Improve the relationship between the school and TI-IN!"

It seems to us that at least part of the blame has to lie with the Jemez Valley administration. Mr. O'Choa has to be the most opinionated, difficult-to-communicate-with person we have met in all of our evaluation experiences. The power struggles going on at Jemez Valley must be disruptive to effective external communication, just as they obviously are to harmonious internal relations.

On the other hand, it may be worth noting that if TI-IN has not been communicating anew each year with all new administrators and making sure that they understand the TI-IN programs and processes, this certainly should be done. The administration, faculty and staff turnover rate in small, rural schools is incredibly high, and it would be a mistake to assume continuity between any consecutive terms.

It is also imperative to get the current principal's name correct on mailings. On two occasions, either Mr. O'Choa or his secretary mentioned that TI-IN mail was still being addressed to Joseph Green, a former principal. We know that this is a "little thing," but to insecure people, the little things sometimes mean a lot.

Finally this was our first opportunity to witness first-hand the combination of a top-flight facilitator with an unsupportive administrator. To us the results suggest that the program can be educationally effective in the short run even without administrative support or understanding. In the long run, it is doubtful that such a combination would produce much success.

Site Visit

JAPANESE I

Hale County High School

Moundville, Alabama

On April 3, 1990, the TI-IN United Star Network evaluation team of Steve Rockwell and Lisa Scott traveled to Hale County High School in Moundville, Alabama to evaluate a **JAPANESE I** class. Moundville is a small town, population 1,310, located about 30 minutes south of Tuscaloosa, Alabama. Hale County High School, located on the outskirts of Moundville, has an enrollment of 340 students in grades 7-12. About 70 percent of the students are white and 30 percent are black. The students run the full gamut of the social economic continuum with 60 percent from middle class families and the remainder split between the upper and lower classes.

<u>The Class Environment</u>

We arrived just before class began, met very briefly with the principal, Mr. Jack Clayton, and were escorted to class. The **JAPANESE I** class was held in a chemistry lab in one wing of the school. Ms. Clayton announced our presence to the class and directed a few students to sit in specific seats. [Later she admitted that she did this for our benefit since some of the students were in the habit of sitting together and talking during the lectures.]

The monitor and the TI-IN A-V cart were located in the left corner of the room, with the nine students (two white females and seven white males, with one student absent) positioned around the first two of four lab tables. Four students were seated facing the back of the room so that they had to turn around in their chairs to get a clear view of the monitor. The facilitator, Ms. Clayton--the principal's wife--stood or sat at a table in the right front of the room. No artificial lighting was employed and the room was rather dark. The room was equipped with a window-mounted air conditioning unit that was not turned on. A bulletin board on the right side of the classroom was titled "Satellite Academic Resources," suggesting that the facilitator took some interest in the program. It displayed a TI-IN satellite dish with a student/reporter reading an article in the school newspaper about TI-IN. In cartoon fashion his thoughts appeared in a bubble: "Today Japanese . . . Tomorrow ? ? ?" Step-by-step instructions on how to operate the TI-IN equipment were on the chalkboard on the front wall of the classroom. Due dates of assignments for **JAPANESE I** were also posted.

The time of the **JAPANESE I** class did not correspond exactly with Hale County High School's schedule. Therefore, the TI-IN students had to leave their previous class ten minutes early to attend **JAPANESE I**. [The students said that this was not a problem except when they were having a test in the previous class.] Ten minutes into the **JAPANESE I**

class, when the school bell rang for the regular classes, there was a considerable amount of noise from students changing classes (i.e., talking and opening and closing locker doors), but it didn't seem to distract the **JAPANESE I** students. Mr. Clayton told us that next year the TI-IN class(s) would be held in a renovated band storage room that seats about ten students comfortably.

<u>In-Class Observations</u>

At the beginning of class, the instructor, Dr. Sukero Ito, introduced the day's lesson. The Hale County students asked that the volume be increased, and Ms. Clayton complied. Dr. Ito reminded Louisville High School that it was their turn to check-in on the hotline during his office hours. [Apparently Dr. Ito requires sites to check in on his land-line periodically during office hours, and Louisville High School's rotation was up.] Dr. Ito then asked the facilitator to collect the short essays which were that day's homework assignment. He also instructed the facilitators to grade them.

Dr. Ito took a moment to thank the students who had attended the previous weekend's Sakura (Tuscaloosa's Japanese sister city) festival. Six of the ten HCHS students, along with Ms. Clayton had travelled to Tuscaloosa to observe several of the festival activities. The students had been treated to a tour of the University of Alabama television studios, where **JAPANESE I** is produced; they had seen a presentation on Japanese culture; they had sampled

Japanese cuisine; and they had watched a karate demonstration at University Mall. Dr. Ito showed the students pictures of themselves, including those of a few HCHS students. The pictures evoked the first signs of life and interaction from the students. They laughed at themselves and their fellow students and joked and chatted with Ms. Clayton. Dr. Ito jovially asked the students if they spotted themselves in the pictures. The picture session lasted about five minutes, as Dr. Ito explained and commented on the various photographs.

After displaying the photos, Dr. Ito went over what would be covered in the day's class. "Today's Menu" graphics appeared on the lower half of the screen as he spoke. Ms. Clayton asked if each student had his or her xerox copy of the day's lesson. During the course of the class Dr. Ito asked students to pronounce words after him. Six of the nine students in the class complied. Graphics accompanied some of the words as he pronounced them. Dr. Ito also asked the sites to call in and give the Japanese translation of English phrases. HCHS tried to call in three or four times but could not get through. However, the class did translate the phrases out loud. Later, Dr. Ito specifically asked HCHS to call in. After passing the buck as to who should call in, one student relayed the group's answer.

Dr. Ito then used a map of Japan to show students where certain Japanese cities were located. When Dr. Ito

mentioned that the map might be hard to read, Ms. Clayton directed students to the map in their textbooks. Dr. Ito also showed a two-to-three minute videotape of three young Japanese adults having a conversation (in Japanese) in a clothing store. After viewing the tape, Dr. Ito reviewed the young adults' conversation, which had used words that were part of the day's lesson.

At the end of the lesson, Dr. Ito emphasized the "Key Points" of the day's lesson ("Key Points" graphics appeared on the lower portion of the screen). He then concluded the day's class by asking students for the Japanese translations of the names of several American states while holding up flash cards of the states with their Japanese translations. [The flash cards would have been easier to read if Dr. Ito had used a bolder black marker.]

Several times during the class Ms. Clayton reiterated some of Dr. Ito's remarks, reminded the students to take notes (several were already taking notes), and acted as translator. One evaluator noted that these interruptions caused students to miss out on some of Dr. Ito's information. The evaluator also commented that the class was almost chaotic at times and Ms. Clayton did not seem to be able to discipline the students.

Interviews with Students

Both students and facilitator thought that Dr. Ito was an excellent teacher who presented the material in a manner that was clear and easy to understand. They also

appreciated his use of humor in presenting such difficult material. Several students noted that he had a tendency to go too fast during the lesson, which made it hard for them to keep up. They agreed that his tests were hard, but fair, considering the subject matter.

The students' reactions to the facilitator were mixed. They generally agreed that she was helpful and interested in their progress and always had materials ready in time for class. While all but one felt that she did a good job with the equipment, only one felt a genuine affinity with the facilitator.

Regarding the equipment, students reported the usual outage due to storms. One said that there were audio problems from time to time. The class members did not consider the static on the phone lines during bad weather overly disruptive but they did express frustration over not being able to reach Dr. Ito when they called in. One evaluator noted annoying feedback on the handset at many times during the class, but only one student said that she was not comfortable using the handset.

When asked whether they would take another TI-IN class, the students' responses were mixed. Some said the fact that **JAPANESE** I was an interactive class made it more interesting. One male thought that TI-IN classes were fun and added that, even though he learned a lot, he probably would not be taking another one because he wasn't interested in any of the subjects offered. Another male student

preferred the physical presence of the teachers in a regular class environment but said he would take another TI-IN class because of the variety of subjects offered. One said he definitely would not take another Japanese or other foreign language TI-IN class.

There seemed to be a certain amount of status associated with taking a TI-IN course at HCHS. The student body was made aware of the program through school and local newspaper articles, discussions at school assemblies, and PTA meetings. One female said that she felt privileged to take the TI-IN course because not many were able to do so. She added that the TI-IN courses were more advanced and just more fun than her other classes.

In general, these students signed up for **JAPANESE I** because they needed a foreign language to graduate. They considered Japanese very difficult, but at the same time they admitted that they could have studied more, singly and as a group, to improve their grades. When asked, two students responded with suggestions that they believed might improve the course: have the teacher outline the format, scope, and requirements of the class at the beginning of the year so students know exactly what to expect; and adhere more to the text (e.g., limit the amount of cultural and extraneous information presented in class).

Interview with Principal and Facilitator

Mr. Clayton spoke very favorably of the TI-IN program, considering it an excellent supplement to the school's

curriculum, but by no means a replacement for the traditional classroom teacher. He felt that the biggest problem in the HCHS **JAPANESE I** class was the lack of maturity of the 9th and 10th graders. In his opinion, TI-IN caters to self-motivated and self-disciplined students, which he considered to be lacking in this particular class. He referred in particular to one student who presented a discipline problem in traditional classroom settings as well. He admitted that HCHS would have to screen students more carefully for emotional maturity.

He was quick to defend his wife as facilitator, saying that she was only part-time, not certified, and unable to discipline the students. He expressed frustration that he had to utilize a teacher's aide instead of a certified teacher as facilitator for **JAPANESE I**. He said that an aide was not a professional and lacked the authority to control the class. When Mr. Clayton attended the **JAPANESE I** class, he ordered several students to be quiet and pay attention. He referred to the lack of teacher control in a telecourse as a drawback, saying, "You get a professor's knowledge and nothing else--no authority."

Mr. Clayton expressed a desire to subscribe to the TI-IN United Star Network **ANATOMY AND PHYSIOLOGY** class, which requires that the facilitator be a certified teacher, but he said that HCHS could not afford to give up a teacher to facilitate the class. The school could barely afford to pay an aide. He spoke of subscribing to **JAPANESE I** and **JAPANESE**

II for the upcoming year but noted that the role of facilitator would be very time consuming: two hours for classes, one hour to prepare materials, do mail out, and grade papers, all of which could consume half of a teacher's day.

Both Mr. and Ms. Clayton expressed reservations about the grading system. They felt that final grades should take into account other factors besides homework, quiz and test scores; class participation, for example. They also felt that other factors interfered with making a good grade in an interactive course. Mr. Clayton suggested grading on a curve to compensate for the difficulties encountered in a distance education program. Ms. Clayton believed that study sheets might help in test preparation. She also noted that it was difficult for the students to take a test on one lesson when they were already studying the next lesson in class, especially since there was no review before tests. Ms. Clayton felt that at times the pace of the class was too fast.

Mr. Clayton was worried about what repair service would be available after the University of Alabama terminates its contract with TI-IN. He brought up their relative lack of technical problems compared to other schools in the area. He noted that the school had a computer technology expert on board, Richard McKay, who was very interested in TI-IN and its possibilities.

Mr. Clayton stated that the TI-IN course calendar did not fit in well with his school calendar. When HCHS's classes began, the **JAPANESE I** class had already begun, which put HCHS behind. Mr. Clayton suggested starting TI-IN's classes on the latest starting date of any subscribing school and ending classes on the earliest closing date of any school. In addition to the scheduling conflict, he also said that TI-IN does not recognize many traditional school holidays, so that classes had to be taped and made up at a later date.

It became evident from this visit that although Mr. Clayton appreciated the value of TI-IN technology, the lack of classroom discipline precluded the students from receiving the full benefit of the course content. The **JAPANESE I** class was offered to freshmen and sophomores to enable students to learn a second foreign language at the junior and senior level; however, this particular class appeared to be lacking the self discipline required for learning in an interactive course. The facilitator constantly prompted the students to follow Dr. Ito's directions, but students admitted that she didn't usually prompt them as much as she did on the day of our visit. The amount of direction they have is questionable, as well as is their ability or desire to follow the class without prompting. The facilitator's lack of control appears to be a problem that needs to be addressed in order that all the students can experience TI-IN's contribution to Hale County

High School's curriculum. Resolving the issues of scheduling, grading and finding a qualified facilitator will further enhance the effectiveness of the TI-IN program.

Site Visit

JAPANESE I and **PHYSICAL SCIENCE**

Louisville High School

Louisville, MS

On March 28, 1990, the TI-IN United Star Network evaluation team of Dr. Jennings Bryant, Scott Davenport, and Lisa Scott traveled to Louisville, MS, to evaluate two TI-IN United Star Network Classes: **JAPANESE I** and **PHYSICAL SCIENCE.** Louisville High School's main campus is located on two large blocks of a middle class residential neighborhood. Located 45 miles south of Starkville, MS, Louisville has a population of 7,323. Louisville High is one of three high schools in Winston County, and although the buildings were older, they were immaculate. Many of the students seemed to take great pride in their school: They were courteous and pleasant, and we even saw students stop to pick up and throw away debris that had fallen on the grounds! The school as a whole clearly seemed to meet TI-IN's Title 1 requirements for service to a low-income, rural population. For example, of the 850 students enrolled at Louisville High School, more than 50 percent are below the poverty level (i.e., greater than 50% qualify for free or reduced-cost lunches). A majority of the students are black (60%) with whites and a small number of Choctaw Indians comprising the minority (40%). The students are largely from working-class families, and 40 percent are from single parent homes. At

least 60 students work after school. The area's largest employer is Georgia Pacific, but a number of residents are employed by small textile factories, by the wood working industry, and in farming (cattle and row crops).

Observations about Louisville High School

We found Louisville High school to be exceptional on both academic and extra-curricular dimensions. Despite the small student body, the school curriculum spanned the academic continuum and included Russian (offered every other year), Spanish, advanced physics, advanced chemistry, Advanced Placement English, computer science, three levels of art, painting and ceramics, business management, and auto mechanics. All students were required to pass a literacy test before graduation. The student body as a whole appeared to be highly motivated academically. For example, the recent graduating classes had already won $2.5 million in college scholarships. The school's offerings of extra-curricular activities included golf, tennis, choir, and jazz band, and LHS boasts top state honors in academic test scores, as well as for the performance of its championship football team and concert band (130 members strong). Sports and music teams have consistently been among the strongest in the state. Such an extensive and diverse academic and extramural curriculum is rarely found in much larger and more well-to-do school systems.

Louisville High School had also excelled in the way it had presented the TI-IN program to the students, teachers,

and to the community. First, it was evident that everyone in the area had been fully informed about TI-IN (and Star Schools in general) through articles in the school and community papers (one article we read was headlined, "Highlight of the 1989-1990 school year at LHS was initiation of satellite program"), via presentations to the PTA, and by talks to civic clubs and every conceivable kind of community organization. As a result of this carefully orchestrated publicity, as well as the healthy and progressive school academic climate, seventeen students had enrolled in the **JAPANESE I** class, making this the largest **JAPANESE I** class and one of the largest classes in the TI-IN United Star Network program. Adding to this healthy environment was the quality of the facilitators. Each of them was a certified teacher--not a teacher's aide or the principal's wife. And each was known to be an exceptionally fine teacher in his or her specialty area. Ms. Kay Stringfellow, facilitator in the **JAPANESE I** class, was completing her Master's in Spanish and was chosen as facilitator because of her background in foreign languages. Mr. Don Brantley, facilitator of the **PHYSICAL SCIENCE** class, was a certified science teacher and was the school's popular and revered baseball coach. Completing an equation for excellence rare at any level of the educational process was Louisville High School's remarkably accomplished and devoted principal, Mr. J. B. Edwards. Obviously a beloved administrator with a friendly smile and a hands-on approach,

Mr. Edwards seemed to know every aspect of his school. He possessed a comprehensive knowledge of day-to-day activities and exerted firm control over faculty, staff, and students without being tyrannical. Mr. Edwards took great pride in giving us a tour of the school. He walked freely in and out of classrooms without disturbing anyone, so obviously his presence was not unusual. Moreover, later during our site visit he dropped by both TI-IN classes, something the students reported to be quite ordinary. (Not outside of LHS, we can assure them!) A final key element was the school's counselor, Ms. Sanders, who was such a promoter of TI-IN classes that Ms. Stringfellow reported that during registration between 30-40 students had lined-up to take **JAPANESE I**. We are sorry that we did not get to meet Ms. Sanders.

Interview with Principal

Overall, Mr. J. L. Edwards seemed very pleased with the TI-IN program, and he reported looking forward to adopting other TI-IN classes and incorporating them into Louisville High School's schedule. But he did note three problems: (1) At the beginning of the year, technical problems had led to all of the school's TI-IN equipment having to be replaced. Students had viewed tape recordings of their TI-IN classes until the equipment had been replaced and was working correctly. (2) The second problem was grading. Apparently, there was a 10-point difference between the grading scale used by the TI-IN teachers and Louisville's

grading scale. This difference had led to angry parents wondering why their students had failing grades. The problem had been corrected by the school; TI-IN grades are converted to the Louisville High School scale. Mr. Edwards suggested that in the future grading should be discussed in detail in the facilitator orientation and training sessions. (3) Finally, scheduling had been a real problem. The TI-IN hourly telecast schedule did not fit the school's dayparts, the harmful effects of which we later witnessed with the **PHYSICAL SCIENCE** class.

JAPANESE I

Class Observations

During our evaluation visit, the **JAPANESE I** class viewed a film on Japanese culture. Therefore, we observed an atypical class, since the film left little room for interaction. The Louisville High School **JAPANESE I** class was held in an auditorium capable of seating over 1,000 in three sections. When we walked into this huge space, each of us "knew" that the class had to be doomed from the start. How wrong we were! Actually the lighting was good and the acoustics were almost ideal, so the vast space turned out not to be much of a problem. The seventeen students (14 black, 3 white; 13 female, 4 male) enrolled in the class were seated in the first five rows of the middle and right section. The TI-IN system cabinet with monitor and handset was in front of the stage, located just right of center. The students were spaced at least one seat apart to help

maintain order. There was little interaction between students except for an occasional chuckle as students watched the film. Only one student did not continually watch the program. The program choice was excellent; Dr. Subero Ito is to be commended for choosing and utilizing such excellent audio-visual material, in this instance, a film produced by the Japanese Ministry of Foreign Affairs. The film explored the daily lives of three children of various ages who live in different parts of Japan (a fisherman's village, a small town or farm village, and the city). Several of the students took copious notes during the program. We later learned that the students would be required to complete an essay on Japanese culture at the end of the week. The class ended abruptly about ten minutes earlier than usual, when the program ended. It seemed to the evaluators that the teacher should have come back on screen to provide context to the film and more natural closure to the lesson.

Observations of and Interview with the Facilitator

Ms. Stringfellow, the course facilitator, obviously had enjoyed facilitating this telecourse and reported that she had found the course content to be "interesting." She seemed to pay close attention to every detail of the classroom environment, right down to how to adjust the curtains to prevent a glare on the television screen. She reported looking forward to facilitating next year's **JAPANESE II** class as well as continuing to facilitate

JAPANESE I. As mentioned earlier, Ms. Stringfellow is a certified foreign language teacher with substantial high school teaching experience, so it means something that she considered Dr. Ito to be an extremely good language teacher who had good rapport with the students and was quite successful in getting them to call in and participate. She reported that the students enjoyed Dr. Ito and liked to converse with him during the short dialogues. She indicated that seventeen students in an interactive class had not been a problem, and she noted that most of the students had been doing a good job (i.e., they completed assignments quite well, verbally pronounced words out loud with Dr. Ito, and studied), although there were exceptions. She reported that the students had a "B/C" average overall, with three students maintaining an "A" average, one of whom had maintained a perfect 100 average. Ms. Stringfellow had instructed both the students and their parents on the use of the telephone handset. She had frequently used the TI-IN hotline to correct technical difficulties (i.e., static, weak signals, etc.). She agreed with Mr. Edwards that grading had been a problem and should be discussed in greater detail in future facilitator orientation sessions.

Since it was impossible for the three evaluators to interview all seventeen of the students in the class, we randomly selected as many as we could (seven) to interview. In talking with Ms. Stringfellow afterwards, she reported that we probably had done as good a job as possible in

choosing a representative cross-section of the class. The results from the student interviews are reported in the composite, with individual comments added where appropriate.

Student Interviews

The students we interviewed in the TI-IN United Star Network **JAPANESE I** class reported being "comfortable" with the interactive television teaching process, but several of them noted that the classes would have been better in a smaller room. At least one-half of the 17 students had used the telephone handset, but most reported still feeling "shy" in talking to the teacher, because they had not wanted to appear "stupid" to students at other sites. This was not a common response for TI-IN students at this point in the term. We can speculate that at least five factors have contributed to their continued apprehension: (1) The first has to do with the nature of their classroom. Talking in that environment had to be almost like being "on stage." (2) The second may derive from the competitive nature of Louisville High. In schools like this in which a high premium is placed on excelling, significant demand characteristics can lead to added evaluation apprehension. (3) Third, some of the students were quite a distance from the handset, making interactivity even more difficult. (4) With seventeen students, unless the teacher calls on Louisville more than on other sites, the students would have used the handset less often than those at other sites. (5) And, finally, although Professor Ito has encouraged

interactivity, he seemed to be a little less "forgiving" of errors than most other TI-IN teachers. All of these and other factors could have combined to make this class less at ease with the interactivity than those at other sites.

In spite of their shared uneasiness over their own attempts at talking on the handset, LHS still considered the interactive dimensions of the program to be very positive. Several noted that they considered the questions asked by students <u>at other sites</u> to be very "helpful" and fun to listen to. Dr. Ito's prompting of sites to call in, which included calling on some students by name, had helped LHS students become more interactive. It had also helped them feel like they were getting to know students from other sites a little.

The students we interviewed all enjoyed **JAPANESE I**, and each wanted to learn more about Japanese or another foreign language. Most (6/7) would continue taking Japanese as an interactive television class, and most (5/7) would be glad to take another subject from TI-IN. Interestingly enough, several students volunteered that they would not take another TI-IN foreign language class if they could take any foreign language class taught by Ms. Stringfellow--whom many of them reported to be the best teacher in the school.

All of the students we interviewed considered Dr. Ito to be an excellent teacher (one of the best they had had), who knew his subject well. However, interestingly enough, some of the students were a little intimidated taking a

foreign language from a teacher who was a native speaker. All of them reported that they had learned as much or more from this telecourse as they ever had in a traditional classroom setting, and several of them noted that their typical classroom courses were easier than **JAPANESE I.** A couple of students wished that Dr. Ito could have been a little more relaxed, but all thought that he was an interesting and pleasant person.

The facilitator, Ms. Stringfellow, got rave reviews from every student. They considered her to be a star teacher. They found her to be very helpful and enthusiastic, and they complimented her efforts to learn Japanese with them.

Several of the students interviewed noted two problems with the delivery or administrative aspects of the course: static on the line when they or other schools called in, and grading. A few noted that static was not the only technical difficulty. When the weather had been bad, the transmission had been interrupted, and TI-IN had to send them tapes of the class. The students had not found this too big of a disruption, however--just a minor annoyance. They also noted that even though Dr. Ito reviewed tests the day after they were taken, they still did not have a "good feel" for what their grades would be. All in all, three students gave **JAPANESE I** a "B," and four gave it an "A."

6?5

PHYSICAL SCIENCE

Class Setting and Situation

The second TI-IN United Star Network class we evaluated was the **PHYSICAL SCIENCE** class, which we received at 1:30 p.m. The facilitator, "Coach" Don Brantley, opened a small classroom--actually a renovated, institutional green, concrete-block storage room--and set up the TI-IN system well in advance of the time the students arrived. In fact, none of the six students (two black males, one white female, three white males) enrolled in the class were present when the class began, because of the aforementioned schedule difficulties. All arrived (out of breath) five to seven minutes after the class had begun. Upon arrival, the students sat in chair-desks in two rows facing the monitor, with the facilitator seated behind them.

Class Observations

The class we evaluated was a lab, not a regular class, an experience we were glad to have an opportunity to observe. The charisma and energy of **PHYSICAL SCIENCE** teacher David Marshall were evident as he began by showing and discussing with students a newspaper article that illustrated the use of chemicals in everyday life--which, unfortunately our LHS students missed. The teacher then fielded questions and went over part of a lab from the previous day. He used graphics with bold-faced, capital letters to showcase definitions and scientific or mathematical formulas. Using his finger as a pointer, he

emphasized various parts of diagrams, formulas, and graphs, which were magnified by a document camera. After the review, instructions for the day's lab (oxidation of copper) were given. Some of our students made it in for a portion of the instructions, and a couple heard all of the instructions. After the instructions, a slate appeared announcing "Activity Time--Call In with Questions." The facilitator and students left the classroom, walked outside, and hurriedly crossed to another building which contained the chemistry lab. The facilitator and the students who had heard all of the instructions briefed the other students on the day's lab assignment as they "jogged" between the classroom and the lab. We struggled to keep up. During the lab, Mr. Brantley delegated students to set up the equipment and materials necessary to conduct the lab. Then, as all six students gathered around the table, Mr. Brantley left the room and returned with protective goggles. The facilitator was careful to take all necessary safety precautions. The students had to scramble all over to get the proper materials, and then they had to substitute copper shavings for copper powder. [No site had copper powder, we later learned.] Then, as the remainder of the students looked on intently, three students performed the actual experiment (weighing of metal, timing, etc.). Each student independently recorded the results of the experiment and answered the questions. During the experiment Mr. Brantley did a good job of focusing the students' attention on the

"whys" and "hows" of the lab. After the experiment--which wasn't entirely successful (the metal didn't oxidize)--the students hurriedly but carefully put away the equipment and lab materials. Although the students had worked like beavers and had wasted no time, Mr. Marshall had already begun class when the students returned to the classroom. He was in the process of having sites call in with their lab findings. Coach Brantley delegated Ty (Tom) Curran, a white male, to call in with LHS's findings. Ty picked up the telephone handset from the desk and advanced to the front of the room. He relayed the class' answers as the group told him what to say. During a short question-and-answer session, Ty relayed answers to Mr. Marshall's questions. The teacher compared LHS's results with other sites' while writing each site's results down on a sheet magnified by a document camera. [Note: Ty had moved to the front of the class in order to see what Mr. Marshall wrote. We could not read everything from 10 to 12 feet away.] Mr. Marshall took time to explain possible differences in each site's results while complimenting the students on their diligence, and he noted that this was a "hard lab to have no directions on." Mr. Marshall was referring to the fact that the directions for this lab had been inadvertently left out of the workbook.

While another site was having trouble calculating their results, LHS worked quietly together to double-check their solutions to the problem. During the course of the

discussion, they discovered an error in their initial answer and called in to tell Mr. Marshall about their mistake. Mr. Marshall asked Ty a few more questions, which the group helped him answer. Mr. Marshall ended the lab discussion by thanking the sites for calling in. "Good data" and "Thank you sites--good job." Mr. Marshall wrapped up the day's class with a quick review of a previous quiz and an assignment for the following day.

Student Interviews

The students as a whole reported liking the **PHYSICAL SCIENCE** class, and they credited David Marshall's enthusiasm, zeal, and overall ability to explain concepts with being major factors in the success of the class. We were able to interview all six students, and all were in agreement that they would take another TI-IN course, with one student noting "especially if Mr. Marshall is the teacher." Students said they felt comfortable with the telephone handset, but they admitted that two students typically did the lion's share at calling in and relaying answers or questions from the group. On the average, the LHS students had tried to call in at least once a class period, but sometimes they had difficulty getting through to Mr. Marshall--leading them to request additional phone lines. Students also noted the presence of static and feedback over the air when their site called in, as well as when other sites tried to interact with the teacher.

When asked why they chose to take the TI-IN United Star Network **PHYSICAL SCIENCE** class, once again it seemed that the school counselor, Ms. Sanders, was instrumental in advising students into this course--indicating that the interactive class might be interesting and emphasizing the benefits to the students in their preparation for college. [Note: All students planned on attending college.] All students reported that they learned at least as much if not more material in the TI-IN class as they would have in a traditional classroom setting. The students did not feel hampered in changing classrooms to do the lab portion of the class; nor did they find such relocation disruptive. They said, "no real problem." [The three evaluators strongly disagree.]

The students gave this **PHYSICAL SCIENCE** class good grades: 2 "B's," 1 "B+," 3 "A's." Several of them noted that Mr. Marshall had gone out of his way to make the distance learning experience "personal." For example, when "Shay" had made the only perfect test score out of all the **PHYSICAL SCIENCE** students, Mr. Marshall had called the principal, plus he had called Shay to congratulate him personally. From the perspective of several of these students, the only problem with this class was that one of their classmates was a little slow to grasp the concepts discussed in class. The students expressed their regret in not helping him more early on, because now they found his "slowness" disruptive, or at least frustrating, and realized

that they should have tried to help him more. The students also noted that it was helpful to listen to other schools call in because they usually asked good questions.

Mr. Brantley, the facilitator, was a certified science teacher who seemed to have a firm command of the class. He prompted the students to call in and to find solutions to problems, and he queried them about the findings of their experiment as they were conducting the lab. He seemed very competent and knowledgeable about the subject discussed in class, and he seemed to have established a good rapport with the students.

Interview with Facilitator

Mr. "Coach" Don Brantley spent a substantial amount of his free period talking to us about the TI-IN **PHYSICAL SCIENCE** class. An experienced science teacher, he was extremely positive towards David Marshall, the TI-IN teacher. "Excellent job! Couldn't do a better job," he said. He added that Mr. Marshall was also an excellent manager and that he was great in getting interaction from all sites. He tended to emphasize the positive, no matter how negatively valenced our questions. In fact, his only major problem, other than the aforementioned scheduling and grading difficulties, was that being a facilitator was "just as much or more work than teaching the class yourself." Nonetheless, he thought that the **PHYSICAL SCIENCE** course was a real asset to Louisville High.

Conclusions

All day long during this site visit, we thought we had died and gone to heaven! A marvelous principal, extremely well-qualified and concerned facilitators, terrific students . . . Where were we? Had we taken a wrong turn and gone to "Stepford School?" Thank goodness the classrooms (one auditorium, one broom closet) were inadequate, or we would still be pinching ourselves. This site visit really gave us hope in the educational future of rural America. It showed us just how good the distance learning experience can be when all the local site elements are right. Louisville High School, we salute you.

Site Visit

PHYSICAL SCIENCE

To'Hajiilee-He High School

Canoncito Navajo Reservation - Laguna, New Mexico

On Friday, May 4, 1990, TI-IN United Star Network evaluators Dr. Jennings Bryant and Steven Rockwell drove approximately 40 miles west of Albuquerque, NM, to conduct a site visit at To'Hajiilee-He High School, located on the Canoncito Navajo Reservation. At approximately 10:30 a.m. we arrived at the school, which is located on the 66,000 acre reservation and is federally supported via the Bureau of Indian Affairs. The reservation is the home of 1,700 Navajos, with 315 of these attending tne community school, grades 1-12. The high school enrolls approximately 70 students. The school is only five years old and extremely well maintained. It is located in a beautiful setting partially surrounded by colorful mesas.

Interview with Principal

Upon arrival, we were greeted by the school's secretary and ushered into principal Jim Burns' office. Mr. Burns is a poised, articulate administrator who obviously loves his work. He told us how pleased he was with the TI-IN program and spent a great deal of time painstakingly explaining to us some of the cultural differences between the residents of the reservation and those of the "outside" world. He provided us with a wonderful lesson in applied cultural

anthropology, which, for the most part, will not become a part of this report.

Some of the lessons Mr. Burns thought TI-IN provided his pupils were as much contextual as content-specific. To cite only one example, although Mr. Burns was very positive about many of the traditional tribal values espoused by his school's students, he also noted areas where some traditional values might be counterproductive. For example, in the Navajo culture it is an insult for children to aspire to anything loftier than their parents' occupations. In many instances, especially since many of the parents are unemployed, this severely restricts a child's horizons. Mr. Burns pointed out that exposure to other values held by students in other locales across the nation had provided students with alternative perspectives from a peer's point of view.

We also learned that in many ways TI-IN programming may be more concordant with certain elements of the Navajo culture than traditional ways and means of classroom instruction. For example, Mr. Burns noted that teaching in traditional tribal ways is rarely didactic; instead, learning is done from observation. We were told several stories of how young tribal children would watch their elders perform a task over and over until they had learned it, without ever asking a question or hearing a word of instruction. Mr. Burns noted that the frequent demonstrations in the TI-IN program helped the children

learn more easily, since they were accustomed to this method. He added that the children's visual discrimination and artistic skills were superb--indeed, some of the art work we saw was amazingly detailed and beautiful--and the visual production effects of much of the TI-IN programming were ideally presented to allow the students to use their perceptual acuity skills.

Mr. Burns was, for the most part, very enthusiastic about the TI-IN program, and he had obviously gone out of his way to make the system work. For example, the school videotaped in-service programs and used them frequently. Moreover, this year the school's schedule had been worked in around that of TI-IN, obviating prior problems with course scheduling. Mr. Burns had nothing but praise for the replacement facilitator, Lori Platero, saying that she was highly competent and had experienced almost no discipline problems in the classroom. The school had experienced some problems in getting the necessary science lab equipment, but they had managed to do so because of the necessity of having the science class.

The only problems that Mr. Burns mentioned to us dealt with the pacing of the course and the channels of communication to TI-IN. He stated that the science class had been slower paced than he had expected and seemed to be a bit more elementary than he had presumed. Since **PHYSICAL SCIENCE** had been found to be too easy for the junior and senior level, the school had adjusted by offering the class

to the lower grades, primarily to Freshmen. Mr. Burns felt that if TI-IN would supply more specific curricular materials well in advance of class offerings, then school officials would know what the target grade levels should be for any particular class. He also explained that in the past it had sometimes been difficult to communicate with the people at TI-IN in San Antonio to find out exactly where they were in the term, especially after returning from school vacations. He did, however, state that he believed that David Marshall, the **PHYSICAL SCIENCE** teacher, had been very responsive in communicating and meeting the needs of the school.

Interview with Facilitator

The facilitator, Lori Platero--a Navajo who lived adjacent to the school--seemed very interested in the course, in her students, and in the progress and well-being of the tribe. She stated that she was willing to work hard with students in order to make them work more in their weakest areas, and she did not hesitate to call in the school's science teacher with any problems she had in the lab. Ms. Platero said that spring break had been a problem, but since the students had combined two class periods (5th and 6th periods) in order to fit **PHYSICAL SCIENCE** into their schedules, time for make-up work was readily available. The students were also allowed to take the videotapes of the lessons home if they missed a class and make up missed work

in this manner, although she noted that not all students had ready access to a VCR.

Ms. Platero told us that it took two weeks for most graded papers to be returned, a reasonable length of time. She did note, however, that the amount of grading and preparation necessary for her as facilitator was quite a load--substantially more than she had anticipated. Mr. Marshall's frequent call for facilitator points also presented a problem, as they were often difficult to keep up-to-date.

One problem that Ms. Platero mentioned was that Mr. Marshall occasionally made changes in the lessons plans and did not give enough advance notice of these changes. This made it difficult to get the appropriate materials photocopied and to the students. The school only had one photocopier, which occasionally broke down and caused problems with last-minute duplication.

Observations

The classroom where the TI-IN equipment was set up was quite large and very well lit. One wall in the room was made up of a series of large windows which opened over a plain towards a colorful mountain range. It is unusual to see so much glass in modern school classrooms, because of security problems, but Mr. Burns explained that vandalism was not really a problem at the school and they had, so far, only needed to replace one window. At any rate, it gave the room a very "live" feeling, much better than some of the

"broom closets" we had seen used at other schools. The students present, three males and three females, had all been selected for the class because of their expressed interest in pursuing a science-related career. They sat at tables near the monitor, males at one table, females at another. Each student had a very clear view of the monitor. As the class began, the facilitator brought the handset out and handed it to the students.

The students appeared motivated and all seemed to pay attention to Mr. Marshall. Ms. Platero walked around the room and interacted with the students to guide them along. This process seemed most effective. When Mr. Marshall asked questions, Ms. Platero appeared to know the material well enough to be an effective mediator between the students and Mr. Marshall. Ms. Platero could anticipate who would have problems and was there to help them without their even having to ask. She spent about an equal amount of time between the male table and the female table, showing them where they were and prodding them along.

Mr. Marshall's lecture, although better than that observed by us the previous day at Jemez Valley, still appeared to be somewhat lackluster. Later, two students volunteered that Mr. Marshall had not had a very good day, either yesterday or today. While he did seem more sure of himself in the second review lesson, he was still unable to answer all the questions he posed. At the end of the lecture he asked the students to balance simple equations, a

task he himself made a simple error in performing. It appeared that he had spent little, if any, time preparing for the lecture; he paused to reflect on all the students' answers before making judgments or other responses. Having viewed tapes of **PHYSICAL SCIENCE**, having observed his classes in the past, and having listened to the students' positive evaluations of his teaching, we have to believe that we observed **PHYSICAL SCIENCE** when the teacher did a sub-par job of instruction.

After the lecture, Ms. Platero immediately replayed that day's lecture so that the students could get any notes they missed or watch any problem areas for immediate reinforcement--a great idea, all schools should have this luxury of extra time! During this review time we interviewed the students. We took them to a separate room and spoke to them one-on-one. It must be understood at this point that the Navajo people appear to be very soft-spoken and reserved as a group. Because of this, the students did not offer particularly useful or insightful information in their interviews.

Student Interviews

The To'Hajiilee-He **PHYSICAL SCIENCE** class normally had eight students, but two were absent on the day of our visit. The reason was unusual for this normally arid region; heavy rains had left many of the roads on the reservation impassable, and at least one bus had been mired in the mud all day long. Most of the other buses in the parking lot

were absolutely covered with mud. In fact, when we had arrived, a disgruntled bus driver had been cleaning the windows of his bus with a garden hose and a push broom. So much for the "desert!"

We interviewed six student, three males and three females. Five were freshmen, ranging in age from 14-16, and the sixth was a female junior, age 17. All were Native American Indians--Navajo. [When we asked what racial label they preferred, three said "Native American," two said "American Indian," and the sixth emphatically said "Navajo," so we opted for a "safe" composite label.]

The students were in agreement on many points. For example, all reported that their school--faculty and administration--was extremely supportive of the TI-IN program and had given **PHYSICAL SCIENCE** substantial promotional attention and support. To a person, all of the students liked taking a course via the TI-IN United Star Network. They had "more fun" taking classes this way than they did in their other classes, and all agreed that they would take another TI-IN class.

The students' reactions to the instructional dimensions of this class were generally positive, but the magnitude of their approval for this particular class was not reported to be as high as it was for the TI-IN system. All six students graded the class as a "B," and each thought that it could be improved. Four students rated this particular course as being equivalent in quality to their classroom courses,

while two rated it as somewhat better than their average course. The tests and grading were rated as "very good."

Similarly, although all of the students liked Mr. Marshall and found him personable, three students said that the quality of his teaching was about the same as that of their other teachers, and the other three students reported that Mr. Marshall was "a bit better" or "a little better" than their average classroom teacher. Their specific criticisms were rather consistent: One student reported that "Mr. Marshall gets confused sometimes"; a second reported that "Mr. Marshall makes quite a few little mistakes"; and a third noted that "Mr. Marshall has his good days and his not-so-good days--today he wasn't quite so good." Their observations were similar to ours based on two days of watching the class. All six students reported that he seemed to know his subject matter "very well," but a couple mentioned that sometimes Mr. Marshall didn't seem to be as well prepared as he should be.

The student evaluations of their facilitator, with whom we had been most impressed, were positive, but two of them were less enthusiastic than we had expected. With a little probing, we learned that tribal politics sometimes shaded the student evaluations of their fellow tribal members. We also learned that the students were quick to carry over their parents' opinions into such evaluations. Perhaps, in this instance, their answers to our most behavioral questions are the most reliable. When asked (a) if they had

ever sought help from their facilitator and, if so, if she had provided it, (b) whether the facilitator had exhibited interest in their progress, and, most critically, (c) if they would want Ms. Platero to be their facilitator in another TI-IN course, each student answered "yes" to all questions. Ms. Platero seemed to us to be a strong-willed, demanding facilitator who cared a great deal about her charges and did not hesitate to push them a little if that was what she thought was needed for their success. Some students obviously thrived on this doting; others seemed to think that it was a bit much at times. We can certainly understand both points of view, but we still can wish that the students knew how lucky they were to have a facilitator who cared enough about them to push them from time to time.

In contrast to their reticence to talk when queried about personnel matters, each student ventured an opinion when asked what could be done to make the class better. A few answers were unrealistic for the distance learning environment. For example, two students suggested that means should be provided for them to meet the students at other sites, and one student even suggested that the class could be improved if all of the sites could be located in one common place. The other three responses are more tenable, perhaps, but still difficult and expensive. One student simply wanted to meet Mr. Marshall in person one time. Another wanted more lab equipment and opportunities for hands-on science experience. The final one merely wanted a

larger class so that he did not get called on so often. Interestingly, no one had any suggestions regarding class content, organization, delivery, or the like.

Summary

In many ways, To'Hajiilee-He High School provided us with a model distance learning site to observe. To find in one location excellent physical space; a dedicated and competent facilitator; and a concerned, innovative and resourceful school administrator was all too rare. Add to that a classroom rimmed with expansive picture windows, from which you can gaze across miles of uninterrupted, unspoiled vistas, and what more could you ask? The only fly we found in the ointment was the students. Unfortunately, they did not seem to care very much about learning. In this group of six hand-picked, intelligent, "college-bound" students, two of them told us that they planned on dropping out of high school as soon as they could. One wanted to drive race cars; the other wasn't quite sure what he wanted to do, but he knew that it had nothing to do with books. We certainly do not mean to be critical of prevailing subcultural values, and we know that there is considerable merit in the Navajo tribal culture with which we came into contact, but we have to admit that we were left with a bit of a feeling of futility regarding some of the students. They were being offered so much. They were choosing to take and keep so little.

We would also be remiss if we did not offer an observation regarding the **PHYSICAL SCIENCE** lessons we observed on two consecutive days. Both days were in large part "review days," geared principally to preparing for an upcoming test. Such days can be extremely valuable for distance learning classes, just as they can be for in-school classes, _if_ they are well organized and offer a synthesis of materials. From our observations and from talking with the students and the facilitator, we came away with two conclusions:

(1) too much simple rehashing was offered; and

(2) Mr. Marshall had not prepared the review material carefully nor rehearsed it as thoroughly as he should have.

As a result, the students seemed to be bored with the presentation much of the time, and Mr. Marshall's credibility was undermined by "false starts," inconsistencies, and a couple of glaring errors. The students and facilitator were quick to be critical of those days' lessons; they were equally quick to point out that the quality of these presentations was not normative for David Marshall.

Site Visit

SPANISH III

Northview High School

Dothan, Alabama

Curtis Love, John Owens, and Steve Rockwell served as evaluators for the TI-IN United Star Network **SPANISH III** class. They conducted a single site visit on March 28, 1990, at Northview High School in Dothan, AL. The Spring semester TI-IN **SPANISH III** class had a very limited enrollment--a total of 17 students at the time of this evaluation. The nine sites other than Dothan enrolled a total of 10 students; Northview High is the location of the other 7 students--one freshman, five juniors, and one senior--a total of 41% of **the SPANISH III** students enrolled during the Spring 1990 term.

Northview High School is a large, modern facility that currently serves approximately 1,550 students. It was erected in 1987 and is one of two high schools in Dothan. Located in an affluent neighborhood, the typical student comes from a middle to upper-middle class environment. The student body is approximately 60% white and 40% black. One quarter of the students are enrolled in some sort of honors course.

<u>Interview with School Personnel</u>

Upon arriving at around 7:30 a.m., we were introduced to the school princ_pal, Phil Hardy; media specialist, Jean

Hollis; and facilitator, Margarita Register. During our 20 minute conference, Mr. Hardy voiced many concerns about the TI-IN program. One of the main problems was the matter of scheduling. Classes at Northview begin at 8:05 a.m., while the TI-IN **SPANISH III** telecast begins at 8:00 a.m. The school had considered adding Latin and Russian to their TI-IN course offerings, but TI-IN delivered these courses at 7:00 a.m. and 4:00 p.m., respectively, which did not coincide with school hours.

Mr. Hardy and Ms. Hollis voiced their concern that the quality of teaching in **SPANISH III** had dropped noticeably during the last month or so. They said that the course had been too "easy" during the first two nine-week sessions, but suddenly it had become more difficult. They also said that their students had been more advanced than those at other TI-IN sites during the first two semesters, and they were sceptical of the value of the 18 weeks of "review" that their students had purportedly undergone while the other students caught up. Ms. Hollis had suggested that the in-school Spanish I and II teacher, Mrs. Cooper, give a test to the students at the end of the school year to appraise their progress.

Mr. Hardy said that he had heard some concern about the TI-IN system expressed by some of his faculty members, who appeared to be worried that TI-IN might replace them. However, the faculty had also voiced the many possible benefits of the program. They seemed to be supportive as

long as they were assured that TI-IN would be used only to supplement traditional in-school teaching, especially when core classes were full.

Mr. Hardy and the Principal of Dothan High School--the other city high school--had come to The University of Alabama to discuss the possibility of adding bio-prep (e.g., **ANATOMY AND PHYSIOLOGY**) to their curriculum, but had departed sceptical about the cost [approximately $5,000]. Dothan is currently reviewing with officials of The University of Alabama, which is a partner in the TI-IN United Star Network, a bill they had received from TI-IN for approximately $3,500. They have argued that this sum is above what they had agreed to pay. A meeting of Dothan school officials was scheduled at 9:00 a.m. on the day of our site visit to discuss the future of TI-IN in their school system. We were not made privy to the outcome of those deliberations.

Ms. Jean Hollis, the school media specialist, said that even though students had little difficulty with the equipment, she had been intimidated by the TI-IN equipment at first and had to call for assistance. Since then, she has found that the system is more "personable" than she had expected. According to Ms. Hollis, interest in TI-IN programming had come primarily from upper-level students, although not all students currently enrolled in the program are upper-level. She also voiced concern that the TI-IN

nine-week semesters and vacations do not coincide with those of Northview.

Margarita Register, the course facilitator, did not participate very much in the conversation, perhaps because Ms. Hollis was her supervisor or because she has only been the facilitator for two months. We sensed some conflict between Ms. Hollis and Ms. Register, although we did not pursue this in further conversations because it did not appear politically expedient to do so. It should be noted that although Ms. Hollis did most of the talking, she apparently did not actively participate in the TI-IN program.

Classroom Environment

Students met in a cramped room used for magazine storage in the library. The lighting was adequate, but the ventilation was poor. The seven students sat around a single folding table with very little room for books and notebooks. The monitor and equipment cart were located in the front of the room, and all of the students had a clear view. The class consisted of two black females, two white females, and three white males, one of whom was an Hispanic from Puerto Rico. The handset was placed in the middle of the table and was used by all students. Sometimes they left it sitting on the table and shouted into it in unison.

Observations

Ms. Register interacted positively with the students before the class and seemed to have established a rapport

with each student. She introduced us and took a seat in the front of the room next to the monitor. Ms. Register adjusted the tint on the screen, but there was also a slight echo that was annoying.

The TI-IN **SPANISH III** instructor, Ms. Susan Altgelt, began by addressing students by their English name and their Spanish name. In the first exercise, there were several mistakes in the spelling and use of words presented in the graphics. Apparently Ms. Altgelt had not reviewed the graphics prior to class because she said, "I'll have to start looking at these myself." Ms. Altgelt appeared to be a bit short-tempered and not particularly adroit at handling questions that did not deal directly with the subject matter.

Another exercise involved students listing the parts of a car shown on the screen. The Northview students said they could not see the car clearly (and neither could we). During the grading of the exercise, students argued among themselves that they did not fully understand the instructions. As students called in with answers, Ms. Altgelt put each student's photograph on the screen, an excellent way of personalizing the class.

During the next exercise, Ms. Altgelt had the Northview students identify cutouts of various objects on the screen. Each student took a turn, and the exercise took about 10 minutes. She then repeated this with students at another TI-IN site. The Northview students seemed attentive during

the whole exercise, and some answered questions vocally throughout the period, even when they were not on-line.

Interviews with Students

Overall, the students interviewed were very positive about the TI-IN **SPANISH III** program. All were 17 year old juniors. They appeared to be comfortable using the handset and reportedly called in at least three times a week, which is required by Ms. Altgelt in order to receive 20 points and avoid the penalty for not calling in. The only technical difficulties experienced were during two major storms, and these did not interfere with the students' basic reception of the class. One student mentioned that they had to hold the handset in a horizontal position in front of their mouths to prevent bad reception.

When asked about the **SPANISH III** course, the students answered that they thought the class was interesting, kept their attention (most of the time) and made them want to learn more about the language and the culture. Three students gave the class an "A" and another a "B." Suggestions for improving the class were to get a bigger room with better ventilation and to have field trips, site-related matters.

The class members said that they were a close knit group, most probably because of the small class size. One of the students interviewed said that the students joked around and considered their classmates as friends. However, they all reported that they didn't feel close to the

students at other sites due to the lack of direct interaction.

The tests for this class were judged hard, but fair, and were usually graded promptly (within one to two weeks). Ms. Altgelt went over the tests the day after they were given.

The students said that they would take another TI-IN course if one were offered. Their reasons differed. One liked the small size of the classes, another said the TI-IN classes were more interesting, another said whether she would take another class or not depended on the subject matter, and another added that she would not take a TI-IN math class, but would prefer an in-class teacher for that subject.

All of the students said that they liked the TI-IN teacher and thought she was pleasant, interesting, and knowledgeable of the course material. Students reported that the quality of instruction was at least as good as that of a traditional class. One mentioned that she called the teacher frequently during office hours and Ms. Altgelt was always available. She added that Ms. Altgelt also did a good job of calling all the sites during class, calling on people by name, and trying to keep everyone on track. Ms. Altgelt did make a few mistakes during her lecture, and the students were quick to point them out on the spot. When asked about the quality of her teaching, the responses ranged from "adequate" (n = 1) or "fair" (n = 2) to "good"

(n = 4), with the latter illustrated by the comment, "she seems to know more than my other teachers." One student thought that Ms. Altgelt put more into teaching in order to compensate for not being physically present.

Most of the students were very positive about Ms. Register, the facilitator, saying that she always had the equipment ready for class and that they would like to have her as facilitator if they took another TI-IN class. On the other hand, one student stated that he thought someone with a stronger presence might do a better job of motivating the students to pay attention.

When asked if their school supported TI-IN, students were not very clear in their answers. Either they didn't know or thought that the school "seemed to like it." Tangible support of TI-IN at Northview had included an article in the school paper and another in a local paper. The faculty had shown some resistance to TI-IN because students had to miss homeroom in order to attend **SPANISH III** at 8:00 a.m.

Further Interview with Facilitator

We spoke with the facilitator, Ms. Register, a black female, after class. She said she had only been the facilitator for two months and that it was in her job description. The previous facilitator had left to concentrate on family and business matters. When not acting as facilitator, she worked as a clerical aide for Ms. Hollis in the library. She was also responsible for getting the

library on-line with a computer system. She had two years of Spanish and was able to follow along with the program. Ms. Register noted that they do not tape any of the lectures. She also said that the in-school Spanish teacher liked the program and had taught most of the students in the **SPANISH III** class, but that she had not actually attended a **SPANISH III** broadcast.

Summary and Conclusion

Our overall observations were that the students did like the TI-IN **SPANISH III** class and were interested in the material. They were basically well-behaved, attentive to the monitor, and quite vocal in class. The two black females had sat together on one side of the table and the other five white students sat cramped on one side and the end of the table. This made us question student comments on being a close-knit group. Also we did not notice any communication between the black and white students. The two black females were the least vocal, speaking only when directly addressed by the TI-IN instructor. Ms. Register sat facing the screen and following along with Ms. Altgelt. She prompted the students when Ms. Altgelt gave instructions and seemed interested in the course.

Our impression of the Principal, Mr. Hardy, was that he was not completely satisfied with the program. He said he was doubtful that Northview would subscribe next year. Ms. Hollis, while vocal in our meeting, did not give the impression that she really knew much about the operation of

TI-IN. Her comments about the quality of teaching are questionable since Ms. Register said that her supervisor had not attended class in the two months she had been there. It seemed like there was some "coaching" done prior to our visit. We also sensed some friction between Ms. Hollis and Ms. Register--possibly since Ms. Hollis is the supervisor. As with the Gordo High School visit, there did not appear to have been enough explanation and promotion of the TI-IN program to the faculty and students. From remarks made by the TI-IN students, the general student body did not appear to know anything about the program. Overall, if students were genuinely interested in the system, they either did not make this known to the faculty, or the faculty was not interested in the program.

A primary concern is that communication between the students and the administration needs to be improved so that the needs of the students can be addressed. The **SPANISH III** class clearly seemed to be benefitting the students of Northview High School, with or without the support of the school administration.

Some improvements in the telecourse also need to be made: From the class we saw (plus videotapes of two other classes), it seems that Ms. Altgelt needs to take more care in planning the lesson, and certainly the visual aids need to be proofed to avoid mistakes--a requisite for any telecourse.

Some improvements also need to be made at the Northview site. For example, the facilitator should do more to stimulate the students who lack the self-motivation that often comes with maturity. She could also improve the seating arrangements. If possible, a larger classroom and a more sturdy table should be found to accommodate the students more comfortably. These latter needs for improvements are symptomatic of the administration and faculty's need to take a stronger interest in the TI-IN program and to examine more carefully the students' perception of the benefits their class had offered.

Site Visit

PHYSICS and TECHNICAL EDUCATION RESEARCH CENTER (TERC)

St. Anne Community High School

St. Anne, IL

On April 19, 1990, the TI-IN United Star Network evaluation team of Lisa Madsen, Karla Schweitzer, and Lisa Scott visited St. Anne Community High School in St. Anne, IL. St. Anne, a hamlet of 1,421 people, is the retail center of a rural farming community located approximately 60 miles south of Chicago. Large farms are planted in row crops that do very well in the rich top soil of the Illinois/Indiana black belt region.

St. Anne Community High School has been standing since 1929. Fifteen years ago a fire in the band room made it necessary for part of the school to be rebuilt. St. Anne's Spanish students have posted Spanish translations of class names on each classroom door (e.g., "Quimica" for chemistry was posted on the chemistry lab door), adding a touch of individuality to the ambiance of the school. An oil painting of three children (one black, one Chinese, and one white) walking together, entitled "Love is Color Blind," hung on the wall at the entrance of the principal's inner office. The painting was by a former student, and Principal Fred Harris proudly displayed the painting in that prominent location "to keep parents and students aware of the fact

that we live in a multinational society, and we have to get along."

St. Anne's school district comprised an area of 54 square miles. Area unemployment was high, with most residents falling along the lower end of the socio-economic continuum. Enrollment at St. Anne was 370 students (55 percent male, 45 percent female) in grades 9-12, with 86 students in the graduating class. A majority of the students (62%) were black; 37 percent were white; and one percent was Hispanic. Most of the students were from single-parent homes and were below the poverty level, with 61-62% on free or reduced lunch. St. Anne had a graduation rate of 87-89%, with 15 to 18% continuing their education at a four-year college, and 5-7% at a two-year community college.

Interview with Principal

Dr. Fred Harris, who has a Ph.D. in administration from Wayne State University, had returned to St. Anne to serve his home community. In recent years the St. Anne Schools have been "hurt" by significant budget cuts. St. Anne had formerly had three major curriculum levels: (1) college preparatory, (2) vocational, and (3) developmental (remedial). Budget cuts had forced St. Anne to drop all of its vocational courses (e.g., welding) except for a few business classes. Dr. Harris said that he hoped to make greater use of TI-IN despite budget cuts. For example, St.

Anne's wanted to add a college preparatory math course or another college preparatory science course.

Dr. Harris had not formally surveyed teachers at St. Anne, but he thought that TI-IN "had not been a welcome piece of technology" because "it (TI-IN) seemingly replaces teachers." Dr. Harris affirmed that "there is no real substitute for good teachers." [This point may have been lost to St. Anne's teachers. In the past three years, six teachers had not been rehired due to budget cuts. One of those was the physics teacher, who was replaced, at least in part, by the TI-IN **PHYSICS** class.] Dr. Harris philosophized that technology, in this case, the TI-IN system, "stimulates curiosity and interest." He added that such technologies were teaching tools like the film projector and the television set, and he noted that it might take time before these tools were fully accepted and widely used in the classroom. He cited as a case in point that overhead projectors had been used in business for 20 years before they were accepted for classroom use.

Dr. Harris' praise of the TI-IN system increased exponentially as we discussed the **TECHNICAL EDUCATION RESEARCH CENTERS (TERC)** project. Dr. Harris, a former science teacher, reported that it was "phenomenal to get to work with other students and science experts across the country. **TERC** had taken science out of the realm of reading about science and into actual practice and practical studies," which has helped to stimulate a larger interest in

science. He compared the technology and hands-on experience offered by TERC to sending teachers into space. He reported that he considered the TI-IN program and TERC "a marvelous experience for students" and referred to a rather lengthy article on the TERC program recently published in a local edition of *Education Weekly*.

Dr. Harris also praised TI-IN's in-service (staff development) and enrichment programs. In order to view enrichment and an occasional in-service program, St. Anne had run a cable from the TI-IN system located in the chemistry lab on the first floor to the cafeteria upstairs, in order to accommodate larger viewing audiences. Moreover, on two occasions St. Anne had rented a large screen for an in-service program. Dr. Harris noted that there had been good participation from teachers, parents, and students, even though the audio had been very bad.

Dr. Harris offered a few suggestions to help improve the enrichment and in-service programs. He suggested surveying teachers nationwide to find out what teachers want to see "so that more people will be interested in attending." He also suggested that the enrichment and in-service programs should not be too general nor cover what people already know. He suggested that TI-IN should find more ways to include fairly new specific information.

Dr. Harris indicated that St. Anne had only experienced one technical problem--that is, only one after they had replaced a bad cable and a few parts in the system and had

moved their entire class schedule ahead six minutes to make TI-IN's **PHYSICS** class start on the school bell. The problem St. Anne has had to face repeatedly has been the inability to prevent "bad," even "damp" weather from affecting TI-IN's audio transmission.

Class Observations

The facilitator of the TI-IN **PHYSICS** class and the **TERC** Star Schools Project class was Jim France. Mr. France appeared to be an energetic and enthusiastic white male in his mid-forties. He had majored in Biology and has been a science teacher for 22 years. The **PHYSICS** class had nine students (three juniors, six seniors), seven of whom were present the day of our visit. The class was held in a large chemistry lab. The students (four white males, two black females, and one black male) sat in the first three rows of desks in the center of the room. Five lab tables were located on each side of the room, with that day's **PHYSICS** lab experiment set up on a table to the right of the desks. The TI-IN system cabinet with monitor and telephone handset was positioned appropriately--to the right of the center of the front of the room and to the left of the lab tables. After a short introduction and question-and-answer session with students, Ms. Ruth Spears, who was at a desk in front of a blue background and bookcase, began the day's **PHYSICS** lab on focal lengths. The St. Anne students were talking when the program began, but a calming word from Mr. France immediately quieted the group.

Using a burning candle, paper, and a yardstick, students made observations about the size and shape of the candle's flame as well as about the size and shape of the reflection of the flame on paper as the paper was moved various distances from the flame. Students worked in a friendly and cooperative manner, with Mr. France standing by to help with any problems. He did not try to conduct the lab, but instead he asked the students various questions about the lab and the decisions they were making. The students decided that too much light was coming from a window near their experiment, so Mr. France helped them move the experiment to another lab table. Periodically, Ms. Spears reappeared on the monitor to answer a site's question. The students were involved with their experiment and seemed not to pay attention to this interaction. They did not even glance at the screen. All seven students participated in the experiment. They talked freely about the experiment with each other and with Mr. France.

Several minutes before the end of class, Ms. Spears came on screen and demonstrated from a lab set-up on her desk several ways the students might have conducted their experiment. She then reviewed in general what students might have observed as the paper was brought closer to the flame or taken farther from the flame, incorporating adjustments that should have been made as the candle became smaller. Several sites began to call in with questions about her findings compared to their observations. Mrs.

Spears tried to answer their questions with a diagram. [Note: The production staff was very slow switching to the document camera and bringing up the graphics.] Finally, she noted that they were out of time and added that she would be glad to answer their questions later. The St. Anne students quickly turned to Mr. France for answers. He had drawn a similar diagram on the chalkboard, and he explained the diagram to the students. Unfortunately, they still did not seem to understand. The change-of-class bell rang, and Mr. France announced that they would not do **TERC** this afternoon when they stopped by in groups to work, but they would redo the experiment and clear up any questions.

Interview with Facilitator

We did not have an opportunity to interview the students because of their continuous involvement with the lab and the fact that they had to attend classes immediately afterwards, so we had to rely on an interview with their facilitator to provide an index of their evaluations of the **PHYSICS** and **TERC** classes. Mr. France contended that the students had really enjoyed **PHYSICS** and the **TERC** Star Schools program. He noted that four of the nine students in the class had come in during spring break to do the **TERC** projects and he reported that during school holidays he had picked up students in a school van to "do **TERC**." The students typically had come in to the lab while Mr. France was teaching other classes and had worked independently on their **TERC** projects. They appeared to be quite devoted to

completing their projects and sharing their results with peers at other sites nationwide.

In terms of evaluation of their teacher, Mr. France noted that the students had said that some of Ms. Spears' presentations had been paced too slow and sometimes others had been paced too fast, and they had said that her test questions had been overly difficult and too "tricky" in that they appeared to have no right answer. They had also complained that the points of emphasis on the tests had been different from the foci of the lessons. Mr. France agreed with the students on all points. He said that the students had been "really good about doing their homework" as well as participating in the **PHYSICS** labs. He reportedly controlled 70% of their grades from evaluations of their homework and lab assignments.

Mr. France truly seemed to be excited about the **TERC** program. He said that he considered **TERC** to be a tremendous concept and a very good idea." He noted that students typically had been trained in the conceptual step-by-step approach to solving equations and finding solutions, but "**TERC** is at the opposite end of the spectrum." As he saw it, **TERC** had forced students to use their imagination, formulate a concept, and build upon that concept to form a finished product. He cited as an example the solar house project. Students had designed and built a scaled-down version of a solar house and had monitored fluctuations in the temperature inside the house. Later they had sent a

copy of the design of their solar house and a summary of their findings to the eleven other **TERC** sites around the country by the **TERC** electronic mail system. [Samples of those projects are available upon request from the evaluators.] Because students at the various sites had previously traded school background information and student profiles, and had gotten to know each other by communicating personal and course-related information via electronic mail, they had apparently been quite eager to learn as much as possible from their distant peers about these projects.

Dr. Harris agreed with Mr. French that construction of a solar house had been an "excellent" project. He reportedly had considered the solar house to be a fine example of how **TERC** could get students involved in more "in-depth and difficult" academic endeavors.

Mr. France noted, as had Dr. Harris, that St. Anne had experienced some technical difficulties with the TI-IN system. His reports concurred with those of Dr. Harris in that earlier in the year St. Anne had been forced to replace two or three parts of the system before TI-IN tracked down the problem to a faulty cable that had interrupted the signal from their TI-IN satellite to their television set. He also noted that from time to time, ice and snow had effected TI-IN's transmission, and he added that sometimes they have had to sweep out the satellite dish with a broom. He also verified the recurring audio problems that had plagued the system in damp weather.

Mr. France also indicated a problem that we were to hear about again during our Huntland TERC site visit. That was the fact that because of scheduling conflicts, none of the St. Anne students had been able to view the TERC telecasts live. Mr. France had taped the lessons, and students had done the projects later. Obviously this had precluded their taking advantage of the system's potential for interactivity. This was cited as a definite drawback to taking full advantage of all that TERC had to offer.

Mr. France suggested a few changes in the TERC program. He reportedly thought that TERC should have included an introductory unit on microcomputers and software, in order to help train students on the use of computers. He noted that his students were well versed in the uses of the TERC computer now, but they had not been at the beginning of the year. He attributed their advanced level of knowledge and the ease with which they had used the computer at the end of the course to the fact that one of the TERC students had been a "computer whiz" who had written his own programs and who had helped the other students get "up to speed" on computers.

Summary Comments

All in all, the St. Anne Community High School has utilized the TI-IN programs and process and the TERC Star School system quite proficiently, and they seem to have gotten a great deal out of their experience in the process.

Site Visit

PHYSICS and TECHNICAL EDUCATION RESEARCH CENTERS (TERC)

Huntland Schools

Huntland, TN

On May 15, 1990, the TI-IN United Star Network evaluation team of Lisa Madsen and Lisa Scott visited the Huntland Schools in Huntland, TN. Huntland is a small, scenic community nestled in the hills of Tennessee about 40 miles north of the Alabama/Tennessee state line. Located on a picture postcard street, the school's physical plant consists of multiple buildings connected by covered walkways. Some of the buildings are older, but all are immaculate and sport fresh paint and shiny, waxed floors. The students proudly told us that Huntland had just been voted one of the best retirement communities in the nation. Another obvious source of pride was the fact that Huntland had competed in the state baseball championship finals for the past seven years.

The Huntland School System enrolled 585 students this past year in kindergarten through twelfth grade, with 200 students in grades 9-12 and 47 in the graduating class. Seven percent of the students were black (24 males, 17 females). The remaining 93 percent were white, with 28 percent of the enrollment below the poverty level. Morris "Coach" Rogers presided as principal; two assistant principals helped with the administration.

Huntland Schools had been one of twelve schools participating in a collaborative venture between the TI-IN United Star Network and the **TECHNICAL EDUCATION RESEARCH CENTERS** (**TERC**) Star Schools program. Although the primary purpose of our visit was to evaluate their **TERC** program, we had also planned to observe the TI-IN **PHYSICS** class while we were there.

<u>Interview with Facilitator and Students</u>

Upon arrival, we were met by the **TERC** facilitator, Jim Huber, a white male in his thirties who had sounded timid and nervous over the phone but in person was energetic, enthusiastic, and seemed quite competent in his chosen fields of drafting and computers. However, his first announcement caught us totally by surprise. He told us that the **PHYSICS** AND **TERC** classes were not in session that day because the two students in the class had either an "A" or "B" average in their classes and were excused from that day's exams. We were dismayed. However, a repentant Mr. Huber said that he had made time to talk with us, as had the **PHYSICS** facilitator, the principal, one student who was currently enrolled in the **TERC** class, and another student who had been enrolled in the class for some time but who had dropped the class out of frustration after one term. Rather than return from a 9-hour round trip drive empty-handed, we accepted his compromise proposal. We interviewed Evelyn Spaulding, the **PHYSICS** facilitator, and Mr. Huber in the drafting/computer room where **TERC** was taught. The large,

rectangular room contained a dozen drafting tables and about 20 computers. The TI-IN **TERC** Apple Computer with modem was located in the back of the room, set off from the other computers.

When we arrived, Robbie, a white male, was completing a computer project. Robbie was a junior who had been the third student in the **PHYSICS** and **TERC** classes before he had dropped out of the program at the end of the first semester of school. Mr. Huber asked Robbie to join us. We sat in a circle in the back of the room near the computer used in the **TERC** class and had an informal discussion.

Mr. Huber, an industrial arts and technical education teacher, first talked about the **TERC** students. He described Gerald, a white male, as an intelligent student with a future in engineering who was valedictorian of the senior class. He described Susan, a white female, as a "B" student who had exempted all her class exams except for **PHYSICS**. Ms. Spaulding, a white female in her mid-thirties, was one of two certified physics teachers at Huntland. She agreed that Gerald was a mature, intelligent student; while Susan was also thought to be intelligent but lacking in the motivation to do well. When asked why they had offered **PHYSICS** as an interactive telecourse when they had two certified physics teachers on staff, Ms. Spaulding and Mr. Huber both replied that Huntland had been chosen as one of the twelve funded sites across the country, so they could not refuse.

Ms. Spaulding seemed quite frustrated by the technical problems Huntland had experienced with the TI-IN **TERC** systems at the beginning of the school year. Mr. Huber and Ms. Spaulding contended that they had had to "work like mad" to get the TI-IN system and the **TERC** network running. They indicated that TI-IN personnel had been helpful and had sent them part after part to install, but they had remained frustrated because ultimately they had had to replace almost the whole TI-IN system. They added that TI-IN had willingly and promptly sent them tapes of the classes they had missed, but they had been disappointed that TI-IN had not sent a technician. Mr. Huber, Ms. Spaulding, and Robbie, who was well versed on computers, had spent many hours on the phone with TI-IN, and with Ruth Spears, the **PHYSICS** teacher, trying to install new parts and fix various problems. They claimed that one problem or another plagued the TI-IN/**TERC** systems for six weeks. Mr. Huber also contended that once the problems were fixed, they had to learn by trial and error the intricacies of *Appleworks*, the computer program **TERC** used, because Huntland had not been given the instructions or the documentation for the program. Mr. Huber also noted that Huntland had not received documentation for or instructions on some of the **TERC** software, such as *Talk is Cheap*. Mr. Huber described the start of their **PHYSICS** and **TERC** classes as "a rough beginning."

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In October, 1989, during the height of their frustration with TI-IN, Ms. Spaulding had attended a regional Tennessee meeting of TI-IN facilitators and principals. During this meeting, which Principal "Coach" Rogers could not attend, Ms. Spaulding had quite candidly voiced her frustrations about the program. The meeting, which had been planned, hosted, and sponsored by the state to let Tennessee facilitators and principals meet with some successful interactive class facilitators and principals from North Carolina, was held again in December. This time "Coach" Rogers attended and Ms. Spaulding did not. Ms. Spaulding had been upset because the coordinator of the meetings had spoken with Mr. Rogers and had given him "overblown negative feedback" about the comments she had made at the October meeting. When the principal had returned from the meeting, he had informed Ms. Spaulding that effective the end of the school year, her services as facilitator of the **PHYSICS** class would no longer be required.

Another problem Huntland had faced was grading. Both of the facilitators as well as Robbie noted that Ms. Spears' tests were almost impossible to pass. [Note: The facilitator and students at St. Anne Community High School had also noted that the tests were extremely and unnecessarily difficult.] Ms. Spaulding noted that Gerald and Susan had realized that with Ms. Spears' grading system they did not have to score well on her tests to do well in

the class, so they had stopped trying to make good grades on her tests. Apparently Ms. Spears counted participation in the **PHYSICS** and **TERC** labs and completion of homework assignments as a majority of each student's grade for the class. Interestingly, the labs and homework assignments did not have to be graded, only checked to see if each was completed. Test scores accounted for so little of the overall grade that the students only had to answer 70 percent of the test correctly to maintain an overall "A" in the class. Ms. Spaulding indicated that she "wouldn't stand for" this type of grading in a class she taught. [We had heard similar statements at St. Anne's.] The facilitators and Robbie further contended that Ms. Spears' tests did not cover what had been discussed in class. They had few complaints over the content of the presentations and demonstrations in the class, especially of the more tangible demonstrations, but they did complain that physics "theory" was not covered well in class, yet it was by and large the subject matter of the tests. This had bothered Robbie so much that he had dropped out of the class. The facilitators both agreed that Robbie, a highly-talented "A" student, had handled the other aspects of the **PHYSICS** and the **TERC** classes very well, and they were highly sympathetic with his frustration. Principal Rogers was too, but he thought that Robbie should have "bit the bullet" and stayed with the class.

Ms. Spaulding also noted that Ms. Spears came across as "sweet and personable" over the phone; however, all present concurred that those positive aspects of her personality had not come across on the air. [Cf. St. Anne site visit.] She added that Ms. Spears' voice was piercing and irritating, a serious problem for teachers of telecourses. Again, Mr. Huber and Robbie readily agreed. [Note: The facilitator and students at St. Anne had also noted the "irritating quality" of Ms. Spears' voice.]

Ms. Spaulding and Robbie contended that Ms. Spears seemed to be afraid of handling the tougher concepts. They noted that she had tended to cover "major concepts in two to three minutes" and had spent a great deal of time on easier concepts. They sited as an example the two chapters covered at the beginning of the school year. The chapters had essentially been a review to get students at various schools up to the same level of physics and math. Ms. Spears allegedly had spent two months on those chapters, although few of the students at their site or, as best the Huntland interviewers could tell, at other sites had seemed to need such review. Ms. Spaulding and Robbie--and later Gerald--alleged that these two chapters could have been covered in one week. Both of the Huntland facilitators and Robbie noted that they had almost never been able to reach Mrs. Spears by phone during the class and take advantage of the interactive potential of the class. They reported that the phone lines had always been busy, and they argued that more

lines had been needed to allow easier and quicker access to Ms. Spears.

On a more positive note, Mr. Huber reported that he still thought that TI-IN and **TERC** were "great ideas for little schools." He thought that **TERC** had particularly good potential and was quite disappointed that Huntland would not be subscribing to **PHYSICS** next year. Mr. Huber added that he planned to make use of the computer software and the **TERC** programs in his classes next year anyway. He had been quite pleased that Susan, Gerald, and Robbie had liked to communicate via modem with other students across the country and compare projects, especially with a student in Weed, NM, whom they referred to as "Dean from Weed." Mr. Huber and Robbie noted that communication between the twelve schools had dropped sharply during the last two months of class, although they offered no reasons to explain this fall off in interactivity.

Mr. Huber also noted that getting students out of other classes once or twice a week for a 25 minute **TERC** telecast with Ms. Spears had been "almost impossible," even though Ms. Spears had notified sites a couple of days in advance of when **TERC** instructions were given. [Note: **TERC** segments were not telecast regularly; instead, Ms. Spears announced upcoming dates of **TERC** telecasts. The **TERC** segments were telecast live between noon and 12:25 p.m., and time was then allowed for students to interact and phone in with questions to Ms. Spears.] Mr. Huber noted that he almost always had

to tape the TERC segments so that the students could watch the tapes later. This was a less than an ideal solution, however, because the students lost the advantage of being able to call in "live" if they had any questions. [Note: St. Anne expressed similar concerns.]

Mr. Huber evaluated the "design" and "solar house" projects as "wonderful," but he was disappointed that students had not gotten an opportunity to measure radon gas quantities in homes and buildings. He had been quite displeased that "at least half" of the projects mentioned in the TERC materials had not been attempted due to lack of time.

Student Interview

After our small group discussion with Ms. Spaulding, Mr. Huber, and Robbie, we had a separate meeting with Gerald. Gerald had attended Huntland from kindergarten to twelfth grade and was indeed a mature, intelligent, and articulate young man. He generally agreed that TI-IN's interactive courses were a good idea for smaller schools, but he suggested that Huntland should use the TI-IN system for classes the school did not currently offer rather than repeat courses offered locally (e.g., AP English rather than physics). However, he credited the TI-IN PHYSICS and TERC classes with helping him land a prestigious summer engineering position. He noted that the inability to reach Ms. Spears during class had been "very frustrating," and he also suggested that more phone lines be added to ease the

problem. Gerald noted that he had had Ms. Spaulding for three classes in grades 9-12, and he had found her to be a good teacher, although he thought that she might have been a little too negative about the TI-IN program. He quickly added that her dislike for the program had not impaired her ability to help students in the class. He noted that Ms. Spaulding had always been terrific in helping the students through the difficult parts of the TI-IN **PHYSICS** class, especially when Ms. Spears had covered a difficult concept too quickly, which he noted that she was wont to do. Gerald also expressed frustration over Ms. Spears' tests and her grading system.

Interview with Principal

After we interviewed Gerald, we talked with Principal "Coach" Rogers. He agreed that Gerald was an exceptionally intelligent and mature student and noted that he felt that the **PHYSICS** and **TERC** classes had been instrumental in Gerald's acquiring the summer engineering internship. He noted that this internship might ultimately lead to a cooperative education position between the work company and the University of Tennessee, where Gerald planned to attend college.

"Coach" Rogers described Susan less benevolently. He noted that she was somewhat "wild" and added that she was "involved in too many things." He noted that Susan had had a "hot and cold attitude" toward academics. He pointed out

that she could have done better academically if she had applied herself more in that area.

Mr. Rogers said that Robbie had dropped out of the program without giving the program a real chance, and he noted that Robbie technically should not have still been working on **TERC** projects, although he knew that Mr. Huber had continued to allow Robbie to participate. He did not really seem to mind that Robbie had continued to work with or on **TERC** projects, he just realized that ethically it was suspect.

"Coach" Rogers added that he found Ms. Spears' voice quality to be quite irritating. Although Ms. Spears had been touted as an exceptional teacher, he had not found her proclaimed abilities to be evident and noted that they certainly had not come across "over the air." He suggested that teachers should be given careful screen tests before being hired to teach a telecourse. He thought that it was critical that teachers in such situations be able to communicate with the students through television.

"Coach" Rogers contended that the facilitator, Ms. Spaulding, had always taken pride in being a "hard" and effective teacher; nonetheless, he thought that she had been threatened by the TI-IN system. He noted that she should not have spoken so negatively of TI-IN at the regional meeting and he hinted that he had had numerous conferences with Ms. Spaulding concerning her negative attitude and its effect on the students in the TI-IN **PHYSICS** class. Ms.

Spaulding had earlier admitted that she believed that TI-IN was better suited to art or even foreign languages than it was to science, and she had noted that if physics was to be taught as an interactive telecourse, the teacher had to be extremely good. It was obvious that she believed that Ms. Spears was not that person. She had also claimed that she "was not threatened" by the program. She had contended that Huntland and other small schools "needed TI-IN . . . to help keep students from going to bigger schools."

"Coach" Rogers proclaimed that a positive, effective, supportive facilitator was essential to the success of an interactive telecourse. He noted that Huntland planned to drop **PHYSICS** and **TERC**, but he added that they hoped to be able to keep the computer and software given to the school. They did, however, plan on subscribing to AP English, a course currently not taught at Huntland. "Coach" Rogers has chosen the librarian to facilitate this course and thought that she was enthusiastic about the TI-IN program. He added that Huntland would like to subscribe to more TI-IN courses but could not afford to. He noted that Huntland currently taped enrichment programs for other grades at Huntland and for other schools in the county. The cost of in-service (staff development) courses had prevented Huntland from subscribing to them, however. Mr. Rogers suggested that next year they would "probably overuse the satellite," in contrast to past practices. The coordinator of Huntland's Teacher Center has planned to solicit requests for taped

enrichment programs from Huntland's and other area school teachers. The coordinator planned on setting up a schedule to record and distribute the TI-IN tapes in an effort to organize the process and maximize its impact.

Concluding Note

The Huntland site revealed to us a number of things that can go wrong with distance learning programs and systems--technical problems, personnel problems, teacher problems. We were very disappointed that we did not get to observe the **PHYSICS** and **TERC** classes in action, but we did get a strong feeling of general consensus over some of the problems Huntland had experienced. Interestingly, despite these problems, Huntland was looking forward to taking a new TI-IN course next year.

TI-IN United Star Network
EVALUATION REPORT
1989 - 1990
Volume III: Technical Reports
NARRATIVE DATA AND QUESTIONNAIRE EVALUATION

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I. NORMATIVE DATA

I. Normative Data

The United States Department of Education Star School award to the TI-IN United Star Network was initially used to place satellite-receive and Audio-Video equipment in target schools in 22 states during Fiscal Year 1988. By June 1990, an additional 73 schools had been equipped to receive feeds from the TI-IN United Star Network.

Sites

The number of schools participating in the TI-IN United Star Network increased dramatically from Year I to Year II. During FY '88, 10 schools received student credit courses, 50 received staff development and college credit courses, and 10 took part in student enrichment programs. In FY '89, 149 schools received student credit courses, 216 received staff development and college credit courses, and 316 took part in student enrichment programs.

Courses

Student credit. The student credit courses included:

(1) **ALGEBRA II**[1]. This course was intended to be an extension of the principles taught in Algebra I. The focus was on the structure of algebra and its application.

(2) **PHYSICAL SCIENCE**. The major goals of this course were to prepare students for academic and professional advancement in the sciences, to increase scientific literacy, and to prepare students for life in a highly technical world.

1. Comprehensive evaluation has been provided for courses in bold.

(3) JAPANESE I. This course emphasized basic skills, such as listening comprehension, and the ability to speak the language. It included an introduction to Kanji, the Japanese writing system.

(4) ANATOMY AND PHYSIOLOGY. This course was designed to introduce students to the human body, its intricacy and beauty, and its relationship to health and disease. Another goal was to strengthen students' problem-solving abilities via laboratory exercises.

(5) SPANISH III. The objectives of this course were for students to be able to understand a native speaker of Spanish, to be able to converse in Spanish with creativity, to be able to express opinions, to read and comprehend familiar Spanish materials, to express thoughts in writing and compose short essays using the Spanish language, to develop an awareness of the Spanish culture, to have an appreciation of cultural diversity, to understand linguistic concepts, and to develop skills in learning languages.

All TI-IN United Star Network student credit courses were designed to count towards students' graduation requirements. Some students and some sites used the courses primarily for remedial skill building, while others used the same courses principally for college preparatory purposes.

Staff development. The staff development and college credit courses were produced for teachers interested in specialized instruction and in receiving supportive

information in their particular area of focus. The staff development courses included:

(1) BioPrep Teacher Institute. This program included discussions concerning strategies and techniques for motivating students in various subjects that were a part of the BioPrep curriculum.

(2) Gifted/Talented Education. The emphasis in this program was on identifying and meeting the special needs of gifted and talented students.

(3) FOREIGN LANGUAGE IN THE ELEMENTARY SCHOOL. This provided basic instruction in teaching elementary school children foreign languages.

(4) Effectiveness to Excellence. This program focused on the Bureau of Indian Affairs' initiative with early childhood education, parental involvement, and the Effective School Project.

Graduate credit. The graduate credit courses were designed to upgrade the skills of teachers and administrators. They included:

(1) Earth Science. This course could be taken for college credit or as a refresher course in geology. Topics included the value of geology in daily life, earthquakes, climate, and the like.

(2) PARTNERS IN PROFESSIONAL GROWTH. This program paired beginning teachers with experienced teachers who were trained in peer coaching. It included such topics as time

management, student evaluation and motivation, and conference skills.

(3) Demonstrations and Concepts for Physics Teachers. This course was geared towards the high school physics teacher. The focus was on development of concepts, problem-solving, demonstration, and experiments appropriate for high school.

(4) Foreign/Second Language Education: Current Research and Development. This program was designed for foreign language and second language teachers. It examined theories of language acquisition and application of research.

Student enrichment. The student enrichment programs were available free of charge from the TI-IN United Star Network and were targeted to children grades 7 - 12. These programs included:

(1) Career Vision. The purpose of this course was to enlighten the students as to the career opportunities available in science and mathematics. The program examined careers in medicine, chemistry, earth science, and cognate areas.

(2) Guidance Counseling Institute for Math/Science. This program focused on the career opportunities in math or science (the emphasis changed from spring to fall). This program outlined the academic requirements for these different disciplines.

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(3) Foreign Language Alternatives Lab. This course allowed students to explore new languages and the cultures from which they derive. Sessions included the study of Latin, Spanish, French, German, and Japanese.

Enrollment

Student credit. When examining the TI-IN United Star Network in terms of enrollment for student credit courses, during Year II, **JAPANESE I** had the greatest number of students, followed by **ANATOMY AND PHYSIOLOGY**, **PHYSICAL SCIENCE**, **ALGEBRA II**, and **SPANISH III**, respectively. The figures that follow are net totals that do not include the students who enrolled in the course but later dropped.

JAPANESE I had a total enrollment of 240 students. When this figure was subdivided into Star vs. non-Star School students, 202 were Star, and 38 were non-Star.

ANATOMY & PHYSIOLOGY had a total enrollment of 228 students, which included 146 star and 82 non-Star students.

The total enrollment of **PHYSICAL SCIENCE** was 81 students (Fall and Summer classes combined), with 66 Star students and 15 non-Star.

ALGEBRA II's total enrollment was 31 students, all of whom were Star students.

SPANISH III had a total enrollment of 20 students; 16 Star students and 4 non-Star.

When examining the grand totals as of Spring 1990, 600 students were enrolled in TI-IN United Star School student

credit courses; this figure included 461 Star School students and 139 non-Star School students.

Student enrichment. When examining the enrollment for the student enrichment courses, 108 students were enrolled in FY '88, and 388 participated in FY '89. Broken down further by individual courses for FY '88, *Guidance Counseling Institute-Science* had the highest enrollment with 44 students. It was followed by *Guidance Counseling Institute-Math* with 30, *Career Visions* with 22, and *Foreign Language Alternatives Lab* with 12 students enrolled.

In FY '89, *Career Visions* had the largest enrollment with 235 students. *Foreign Language Alternatives Lab* was next with 56 students participating, followed by *Guidance Counseling Institute-Science* with 55, and *Guidance Counseling Institute-Math* with 42 students.

Staff development. A total of 1,890 teachers had participated in TI-IN United Star Network staff development courses as of June 1990.

Paying for College - Parts I & II had the highest enrollment with 840 teachers participating. **FOREIGN LANGUAGE IN THE ELEMENTARY SCHOOL** was next with 750 teachers enrolled (Spring '89 and Fall '89 combined). *Education in Year 2000* followed with 175. *Gifted/Talented Education* had 94 teachers enrolled. *Effectiveness to Excellence* was next with 15, followed by *BioPrep Teacher Institute* with 14 (Summer '89 and Fall '89). Finally, *BioPrep Orientations* had two teachers participating.

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Graduate credit. As of June 1990, a total of 224 teachers had participated in the graduate credit courses.

PARTNERS IN PROFESSIONAL GROWTH headed the list, with 45 teachers participating. *Theory of Equations for Secondary Teachers* was next with an enrollment of 35. *Demonstrations and Concepts for Physics* had 33 enrolled. *Introduction to Consultation* was next with 27. *Earth Science* followed with 15. *Home/School Communication* had 14 teachers participating. *Mainstreaming* had an enrollment of 12; while *Junior High Science Teachers Institute* and *Foreign/Second Language* each had 10 teachers enrolled. Finally, *Curriculum Development Foreign Language/ESL* and *Foreign/Second Language Current Research and Development* each had an enrollment of 6.

Student credit courses examined individually. When student credit courses are examined individually, in terms of percentage of males and females enrolled and the percentage of students who finished with final grades in the five grade levels (90-100, 80-89, 75-79, 70-74, 50-69), of the 217 students enrolled in **JAPANESE I**, 55% were female, and 45% were male. Nineteen percent received a final grade between 90-100, 29% between 80-89, 14% between 75-79, 7% between 70-74, and 23% between 50-69 (8% were unaccounted for in these data.).

Fifteen students were enrolled in **SPANISH III**; 53% were male, and 47% were female. Fifty-three percent of the

students received a final grade between 90-100, 47% finished with a score between 80-89.

Of the 71 students enrolled in **PHYSICAL SCIENCE**, 56% were male, and 44% were female. Twenty-one percent of the students received a final grade between 90-100, 34% between 80-89, 10% between 75-79, 11% between 70-74, and 24% between 40-69.

Twenty-two students were enrolled in **ALGEBRA II**; 50% were male, 50% were female. Eighteen percent of the students received a final grade between 90-100, 9% between 80-89, 36% between 75-79, 14% between 70-74, and 23% between 50-69.

Of the 218 students enrolled in **ANATOMY & PHYSIOLOGY**, 64% were female, and 36% were male. Twenty-eight percent received a final grade between 90-100, 41% between 80-89, 11% between 75-79, 11% between 70-74, and 2% between 50-69.

A state-by-state breakdown of the number of males and females and their final grades for each course is presented in the tables that follow.

JAPANESE I - Number of Males/Females, Final Grades

State	M	F	90-100	80-89	75-79	70-74	50-69
Alabama	20	25	8	11	14	4	8
California	1	2	1	1		1	
Colorado	2			1		1	
Illinois	6	11	8	7	1	1	
Kansas		2					2
Michigan		1		1			
Mississippi	49	53	8	22	14	7	34
North Carolina	5	6	6	1	1		3
North Dakota		1		1			
Ohio	4	3	1	4		1	1
Oregon	7	8	3	10			2
Tennessee	1	6	7				
Texas	2			2			
Washington		1		1			
Wyoming	1			1			
TOTALS	98	119	42	63	30	15	50

SPANISH III - Number of Males/Females, Final Grades

State	M	F	90-100	80-89	75-79	70-74	50-69
Alabama	3	4	3	4			
Illinois	2	2	3	1			
Ohio	1			1			
Texas	2	1	2	1			
TOTALS	8	7	8	7			

PHYSICAL SCIENCE - Number of Males/Females, Final Grades

State	M	F	90-100	80-89	75-79	70-74	50-69
Illinois	10	9	6	8	2	2	1
Minnesota	8	3				1	10
Mississippi	5	1	3	2		1	
New Mexico	15	15	6	13	4	2	5
Texas	2	3		1	1	2	1
TOTALS	40	31	15	24	7	8	17

ALGEBRA II - Number of Males/Females, Final Grades

State	M	F	90-100	80-89	75-79	70-74	50-69
Alabama	2	2	2		1	1	
Illinois	1	1			2		
North Carolina	4	3	1		1		5
Texas	4	5	1	2	4	2	
TOTALS	11	11	4	2	8	3	5

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ANATOMY & PHYSIOLOGY - Number of Males/Females, Final Grades

State	M	F	90-100	80-89	75-79	70-74	50-69
Alabama	26	57	15	36	16	12	4
California		1	1				
Colorado	4	2		2	2	2	
Iowa	1		1				
Illinois	6	13	11	7			
Mississippi	1		1				
North Carolina	16	45	9	34	5	8	
New Mexico		1	1				
New York	1	2	3				
Oregon	1	4	3	2			
Texas	20	12	13	7			
West Virginia	3	2	2	1	1	1	
TOTALS	79	139	60	89	24	23	4

Enrollment by grade level. When enrollment by grade level is examined for the four TI-IN United Star Network student credit courses offered in FY '89, **JAPANESE I**, with a total enrollment of 240 students, had 76 juniors (32%) participating. Sophomores constituted the next largest class, with 28% or 68 students; following were seniors, with 27% or 66 enrolled. Freshmen made up 11% of the enrollment (26 students); and, finally, eighth graders had the lowest enrollment with 4 students participating (4%).

SPANISH III, with a total enrollment of 20 students, had 11 juniors participating (55%), the most of any other grade level. Seniors constituted 35% of the course participation, with 7 students; and sophomores had the lowest enrollment with only 2 students enrolled (10%).

PHYSICAL SCIENCE, with a total enrollment of 77 students, enrolled 24 freshmen, who comprised 32% of the class. Seniors made up 29% of the course population (22 students); sophomores constituted 21% (16 students); and, finally, juniors accounted for 19% of course enrollment (15 students). As noted in the Site Visit Reports (Volume II), several administrators reported that they had trouble placing **PHYSICAL SCIENCE** at the appropriate level in their curriculum. The course enrollment pattern by grade level supports these concerns.

ANATOMY & PHYSIOLOGY, with a total enrollment of 228 students, was largely a senior course. Seventy-five percent of the course (171 students) was seniors. Additionally, 51

of the students were juniors (22%), and 6 were sophomores (3%).

Examining the grand totals, of the 565 students[2] enrolled in the TI-IN United Star Network student credit courses, 47% (266 students) were seniors, 27% (153 students) were juniors, 16% (92 students) were sophomores, 9% (50 students) were freshmen, and, finally, 1% (4 students) were eighth graders. This overall enrollment distribution seems to be quite in line with the Star School mandate to provide specialized (i.e., upper-level) courses.

2. The 35 FY '88 **ALGEBRA** II students, whose grade breakdown was not provided to the evaluators, were not included in these totals. Counting the **ALGEBRA** II students, 600 students were served by TI-IN United Star Network courses.

Growth Patterns of Student Credit Courses

The TI-IN United Star Network experienced considerable growth on several dimensions between its first and second year of operation. Although some affiliates and participants were lost between registration and the first day of class, the numbers produced by the five Star School student credit courses by the end of the program's second year, as interest had escalated, were substantial.

The initial number of sites reporting student registration over the two years of the program was 158. However, 32 sites apparently dropped out of the program, leaving the net number of sites participating in TI-IN at 126. This latter figure is used throughout the site-breakdown report that follows. Of these 126 sites involved in the program, 87 were Star School sites, while 39 were not.

At first count, 830 students appeared to be registered for TI-IN credit courses, but the normal drop-add session left the net enrollment for TI-IN's two-year curriculum at 600 students. The number of Star students enrolled over the two years totalled 461, while a strong supplementary contingent of non-Star participants totalled 139 students.

The following section provides details on the 126 sites as well as on the background of the 600 students aptly named the "pilots" of the program.

As has been noted, 600 students were enrolled in the student credit courses in the first two fiscal years of the

program. FY '88 (Year I) covered October 1988 - September 1989. FY '89 (Year II) covered October 1989 - June 1990. **ALGEBRA II** and **PHYSICAL SCIENCE** were offered in FY '88.

ALGEBRA II was the first United Star Network course to be uplinked in Fall 1988. **PHYSICAL SCIENCE** followed and was initially delivered in Summer '89. In FY '89, three new courses were added to the program--**JAPANESE I, ANATOMY AND PHYSIOLOGY,** and **SPANISH III.** These three courses added 488 new students to a program that previously had consisted of 112 recipients. Thus, there was more than a 300 percent increase in enrollment for the TI-IN program between Year I and II. **PHYSICAL SCIENCE** itself grew from an enrollment of four students in the summer of '89 to 77 students the next year.

The following is a state-by-state breakdown of students and sites participating in the TI-IN United Star Network student credit courses.

Site reports by state. Participants in the five student credit courses were located in 21 different states. The states involved in the TI-IN United Star Network program included:

1. Alabama [**JAPANESE I, SPANISH III, ANATOMY & PHYSIOLOGY, ALGEBRA II**]
2. Arizona [**ALGEBRA II**]

3. California [**JAPANESE I, SPANISH III, PHYSICAL SCIENCE, ANATOMY & PHYSIOLOGY**]

4. Colorado [**JAPANESE I, SPANISH III, ANATOMY & PHYSIOLOGY**]

5. Iowa [**ANATOMY & PHYSIOLOGY**]

6. Illinois [**JAPANESE I, SPANISH III, PHYSICAL SCIENCE, ANATOMY & PHYSIOLOGY, ALGEBRA II**]

7. Kansas [**JAPANESE I**]

8. Michigan [**JAPANESE I**]

9. Minnesota [**PHYSICAL SCIENCE**]

10. Mississippi [**JAPANESE I, PHYSICAL SCIENCE, ANATOMY & PHYSIOLOGY**].

11. North Carolina [**JAPANESE I, ANATOMY & PHYSIOLOGY, ALGEBRA II**]

12. North Dakota [**JAPANESE I**]

13. New Mexico [**PHYSICAL SCIENCE, ANATOMY & PHYSIOLOGY**]

14. New York [**ANATOMY & PHYSIOLOGY**]

15. Ohio [**JAPANESE I, SPANISH III, ANATOMY & PHYSIOLOGY**]

16. Oregon [**JAPANESE I, ANATOMY & PHYSIOLOGY**]

17. Tennessee [**JAPANESE I**]

18. Texas [**JAPANESE I, SPANISH III, PHYSICAL SCIENCE, ANATOMY & PHYSIOLOGY, ALGEBRA II**]

19. Washington [**JAPANESE I**]

20. West Virginia [**ANATOMY & PHYSIOLOGY**]

21. Wyoming [**JAPANESE I**]

TI-IN United Star Network began its distance learning program by offering **PHYSICAL SCIENCE** in Fall '89. Seventy-

seven students in five states were involved in **PHYSICAL SCIENCE** in FY '88; 66 were Star and 11 were non-Star students. New Mexico provided 32 **PHYSICAL SCIENCE** students to the program, more than any other state. Illinois enrolled 29 students, and Minnesota added 11 to the **PHYSICAL SCIENCE** camp. The remaining two states that enrolled less than 10 students each were Mississippi (6) and Texas (9). Texas is the only state to have consistently enrolled students in **PHYSICAL SCIENCE** since its inception. In FY '88 (Summer 1989) four students from Texas were the only participants in TI-IN's **PHYSICAL SCIENCE** course. All four of those students from Texas were non-Star subscribers. It appears that the Southwestern region (New Mexico and Texas) places a good deal of emphasis on the **PHYSICAL SCIENCE** course, since this area accounted for 53 percent of the nation's total enrollment. The Midwest (Illinois and Minnesota) added 39 percent to the student enrollment total.

ALGEBRA II was another course offered by TI-IN United Star Network in FY '88. Although **ALGEBRA II** was not offered during FY '89, 31 students in 5 states were enrolled in this math course during the first year. All 31 participants were Star students. Texas enrolled the most **ALGEBRA II** students, 13, followed by North Carolina with seven, Arizona with five, Alabama with four, and Illinois with two. **ALGEBRA II** was selected primarily in the Southwest, since states in this region (Texas and Arizona) yielded 58 percent of all subscribers to the first-year program.

During FY '89, **JAPANESE I** was offered for the first time via the TI-IN United Star Network. It enrolled 240 students in 15 states. Of the 240 students, 202 were Star students and 38 were non-Star. Leading in **JAPANESE I** enrollment was the state of Mississippi with 101 students. Thus, Mississippi accounted for 42 percent of the total enrollment for the course. Alabama followed Mississippi, with 52 students. Illinois provided 19 **JAPANESE I** students, while North Carolina and Oregon each had 17 students each. Those states with less than 10 students taking **JAPANESE I** in FY '89 were: California (7), Colorado (2), Kansas (3), Michigan (1), North Dakota (1), Ohio (7), Tennessee (8), Texas (2), Washington (2) and Wyoming (1). It is noteworthy that the Southeastern States--Mississippi, Alabama, and North Carolina--accounted for 71 percent of all **JAPANESE I** students enrolled in the program.

TI-IN also delivered **SPANISH III** to 20 students in five states in FY '89. Sixteen Star and four non-Star students were enrolled. Illinois was the leading state for enrollment in **SPANISH III** with eight students (40 percent of total enrollment). Alabama was next with seven students. However, unlike Illinois, which featured eight students spread over five TI-IN site , in Alabama all seven **SPANISH III** students came from one site--Northview High School in Dothan. Three Texas students received the TI-IN **SPANISH III** course, while Colorado and Ohio each had one student involved in the program.

The final new course offered by the TI-IN United Star Network in FY '89 was **ANATOMY & PHYSIOLOGY**. TI-IN delivered **ANATOMY & PHYSIOLOGY** to 228 students in 13 states. Of these 228 participants, 146 were Star and 82 were non-Star students. Eighty-four Alabama students were enrolled in **ANATOMY & PHYSIOLOGY**. Alabama plus North Carolina (63 students) combined to provide nearly 65 percent of the total national enrollment in the course. Texas was the third largest provider of **ANATOMY & PHYSIOLOGY** students, with 33 participants in the program, and Illinois followed with 21. Those states with less than 10 students enrolled in **ANATOMY & PHYSIOLOGY** included: California (2 students), Colorado (7), Iowa (1), Mississippi (1), New Mexico, (1) New York (3), Ohio (1), Oregon (6), and West Virginia (5) students. It is interesting to note that Mississippi, while enrolling heavily in **JAPANESE I** with 101 students, enrolled only one student in **ANATOMY & PHYSIOLOGY**. North Carolina, on the other hand, displayed more emphasis on **ANATOMY & PHYSIOLOGY** (63 students) than on **JAPANESE I** (17 students). Alabama showed a slightly larger enrollment for **ANATOMY & PHYSIOLOGY** (84 students) than for **JAPANESE I** (52 students). Thus, all other states involved in both **JAPANESE I** and **ANATOMY & PHYSIOLOGY** courses showed consistent registration patterns. **JAPANESE I** and **ANATOMY & PHYSIOLOGY** were the only two courses in the TI-IN program with enrollments greater than 200 students. The Southeastern states showed a particular interest in these two new course offerings in FY '89.

The following table gives a complete state-by-state breakdown of student and site location for the two-year TI-IN United Star Network student credit courses.

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JAPANESE I: Number of Sites and Students by State

State	# Sites	Net Enrollment
Alabama	6 (S*)	52 (S)
California	2 (S)	7 (S)
Colorado	1 (NS)	2 (NS)
Illinois	5 (S)	19 (S)
Kansas	1 (NS)	3 (NS)
Michigan	1 (NS)	1 (NS)
Mississippi	14 (S)	101 (S)
North Carolina	3 (2 S, 1 NS)	17 (9S, 8NS)
North Dakota	1 (NS)	1 (NS)
Ohio	1 (NS)	7 (NS)
Oregon	3 (2S, 1 NS)	17 (10 S,7 NS)
Tennessee	1 (NS)	8 (NS)
Texas	1 (S)	2 (S)
Washington	1 (S)	2 (S)
Wyoming	1 (NS)	1 (NS)
TOTALS	42 sites (33 S, 9 NS)	240 students (202 S, 38 NS)

*S = Star
N = non-Star

SPANISH III: Number of Sites and Students by State

State	# Sites	Net Enrollment
Alabama	1 (S)	7 (S)
Colorado	1 (NS)	1 (NS)
Illinois	5 (S)	8 (S)
Ohio	1 (NS)	1 (NS)
Texas	3 (2 NS, 1 S)	3 (2 NS, 1 S)
TOTALS	11 sites (7 S, 4 NS)	20 students (16 S, 14 NS)

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ANATOMY & PHYSIOLOGY: Number of Sites and Students by State

State	# Sites	Net Enrollment
Alabama	11 (S)	84 (S)
California	1 (S)	2 (S)
Colorado	2 (NS)	7 (NS)
Iowa	1 (NS)	1 (NS)
Illinois	9 (8 S, 1 NS)	21 (18 S, 3 NS)
Mississippi	1 (S)	1 (S)
North Carolina	13 (5 S, 8 NS)	63 (30 S, 33 NS)
New Mexico	1 (NS)	1 (NS)
New York	1 (S)	3 (S)
Ohio	1 (NS)	1 (NS)
Oregon	3 (2 NS, 1 S)	6 (4 NS, 2 S)
Texas	7 (6 NS, 1 S)	33 (27 NS, 6 S)
West Virginia	1 (NS)	5 (NS)
TOTALS	52 sites (29 S, 23 NS)	228 students (142 S, 82 NS)

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PHYSICAL SCIENCE: Number of Sites and Students by State

Fall 1989

State	# Sites	Net Enrollment
Illinois	4 (S)	19 (S)
Minnesota	1 (S)	11 (S)
Mississippi	1 (S)	6 (S)
New Mexico	3 (2 S, 1 NS)	32 (28 S, 4 NS)
Texas	2 (1 S, 1 NS)	9 (2 S, 7 NS)
FY '89 **TOTALS**	11 sites (9 S, 2 NS)	77 students (66 S, 11 NS)

Summer 1988

State	# Sites	Net Enrollment
Texas	1 (NS)	4 (NS)
TOTALS	12 sites (9 S, 3 NS)	81 students (66 S, 15 NS)

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ALGEBRA II: Number of Sites and Students by State

State	# Sites	Net Enrollment
Alabama	1 (S)	4 (S)
Arizona	1 (S)	5 (S)
Illinois	1 (S)	2 (S)
North Carolina	1 (S)	7 (S)
Texas	5 (S)	13 (S)
TOTALS	9 sites (9 S)	31 students (31 S)

Note: **ALGEBRA II** was offered in FY '88 only.

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III. FACILITATOR EVALUATIONS

III. Facilitator Evaluations

Factor Analysis

A single, 94-item instrument (Appendix D) was administered to all facilitators who mediated students enrolled in the Fall 1989/Spring 1990 TI-IN United Star Network credit courses. Respondents completed the questionnaires in late May, at the end of the school year. Items 1-82 utilized a common Likert-type scale, with response options of strongly disagree = 1, mildly disagree = 2, neither disagree not agree = 3, mildly agree = 4, strongly agree = 5. The remaining twelve items collected background information on the facilitators. Responses were received from 129 facilitators.

Since the number of items on the instrument approximated the number of respondents, only items with a correlation $p < .05$ were used in the principle components factor analysis. Seven factor dimensions, accounting for 82.1% of the variance, emerged from the factor analysis. These factor dimensions were: Job Satisfaction (JS), Teamwork (T), Equipment (E), Training (TR), Perceived Importance (PI), Student (S), and Technical Problems (TP).

The first dimension, Job Satisfaction (JS), contained nine items and yielded a composite mean of 3.9. This dimension addressed the degree to which the facilitator enjoyed the role of course mediator between the TI-IN teacher and the students. Most respondents at least "moderately agreed" with all items in this dimension. The

three items which gleaned the highest mean scores were #16 (M = 4.2), #7 (M = 4.0), and #36 (M = 4.0). The responses to these items indicated that facilitators rated classroom interaction and working closely with students as enjoyable, and their confidence levels had increased by the end of the program. The lowest mean score in this dimension was yielded by item #52 (M = 3.6). This item addressed the ability of the facilitator to understand the problems of the students. Although this was the lowest mean in this dimension, it indicated that most facilitators moderately agreed that they were better able to understand student problems upon completion of the course.

The Teamwork (T) dimension, consisting of eight items, yielded a composite mean of 4.1. This dimension attempted to determine facilitators' perceptions of their interaction with the TI-IN teacher. Every item in this category achieved at least a "moderately agree" rating. One item, #9 (M = 4.5), addressing how at ease the facilitator felt with the TI-IN teacher, achieved a particularly high mean score, approaching the "strongly agree" range.

Five items comprising the Equipment (E) dimension attained a composite mean of 4.2. Items in this dimension dealt with satisfaction in working with the equipment and ease of obtaining technical assistance. The high means netted by the items in this category indicated that most facilitators felt comfortable operating the equipment and knew how to seek technical assistance when needed.

The *Training* (TR) dimension consisted of four items which attained a composite mean score of 3.8, suggesting that most facilitators at least "mildly agreed" with all items. Items #1 and #2 both attained a mean of 3.6, indicating that facilitators felt that training was adequate for equipment use and made their job easier. Likewise, they reported (#28 and #29) that they used the talkback telephone system and were comfortable with it.

The next dimension, *Perceived Importance* (PI), contained four items. Respondents indicated ($M = 4.2$) that their presence in the classroom was instrumental to the success of the students. Most facilitators also agreed that they played a crucial role as a necessary and supportive link between the TI-IN television teacher and the students.

The *Student* (S) dimension was made up of three items with a composite mean of 3.3. This category dealt with the motivation levels of students. The facilitator responses to items in this dimension indicate that they perceived room for improvement in student achievement and attentiveness (#26, $M = 3.2$, and #69, $M = 3.2$); however, eagerness (#68, $M = 3.6$) fell within a satisfactory range.

The final dimension, *Technical Problems* (TP), consisted of two items and achieved a composite mean of 2.3. The tendency of respondents to disagree with these items (#63 and #64) would suggest that the facilitators were satisfied with equipment performance.

Facilitator Factor dimensions

A multiple regression analysis was computed on the facilitator factor dimensions derived from responses to the facilitator opinion questionnaire, utilizing the grade averages by site as the predictor variable. The overall regression analysis yielded significance at $p < .001$. The five factors contributing to the explained variance, with their respective Beta weightings, are: Technical Problems (TP) ($\beta = -.469$), Student (S) ($\beta = .644$), Training (TR) ($\beta = .442$), Equipment (E) ($\beta = .548$), and Job Satisfaction (JS) ($\beta = -.323$).

The Student (S) dimension, which addressed the motivation levels and attentiveness of the students; the Training (TR) dimension, which addressed the adequacy of the facilitator and the students' comfort in using the talkback telephone system; and the Equipment (E) dimension, which addressed satisfaction in working with the equipment and ease of obtaining technical assistance, were positively related to student grade variations. Therefore, the more the facilitators agreed with the items constituting these dimensions, the higher their students' grades were likely to be.

The Technical Problem (TP) dimension, which addressed the frequency of perceived technical problems, and the Job Satisfaction (JS) dimension, which addressed the degree to which the facilitator enjoyed serving as the intermediary between the TI-IN teacher and the students, were negatively

related to the students' grade in the class. This would suggest that the fewer the number of technical problems experienced, the higher the students' grades tended to be.

Analyses of Variance

A series of one-way analyses of variance was computed to determine differences in the facilitators' opinions about the four student credit courses. The student factor dimensions and the courses were the independent measures; the factor scale scores served as the dependent variable. The factor scale scores are composite numbers generated from combining all items which constitute a particular factor dimension. All subsequent tests were by Student-Newman-Keuls procedure, with an acceptance criterion of $p < .05$.

The first factor, Teamwork (T), yielded $F\ (3, 152) = 3.358$, $p < .05$ throughout. This indicates that significant differences were found between courses for facilitator responses to items concerning their perceptions of their interaction with the TI-IN teachers. Subsequent tests were performed utilizing the Student-Newman-Keuls procedure. The factor scale score mean from **JAPANESE I** ($M = .397$) and **SPANISH III** ($M = .367$) were significantly different from **PHYSICAL SCIENCE** $M = -1.315$) at $p < .05$. This finding suggests that facilitators in **JAPANESE I** and **SPANISH III** courses felt more positive about their interactions with the TI-IN teacher than did **PHYSICAL SCIENCE** facilitators.

The Equipment (E) factor attained $F\ (3, 159) = .978$, $p > .05$, indicating that no significant differences were

found between courses for items relating to how comfortable facilitators felt operating the equipment and knowledge of how to seek technical assistance.

The next factor, Student (S), achieved $F\ (3, 159) = 18.793$, $p < .05$. This indicates that significant differences were found between courses for facilitator responses concerning motivation levels of students. Subsequent tests were performed utilizing the Student-Newman-Keuls procedure. The factor scale score means from **JAPANESE I** ($M = .058$), **ANATOMY & PHYSIOLOGY** ($M = -.225$), and **SPANISH III** ($M = -.578$) were significantly different from **PHYSICAL SCIENCE** ($M = -2.130$). This finding suggests that facilitators for **JAPANESE I**, **SPANISH III**, and **ANATOMY & PHYSIOLOGY** perceived students to be significantly more highly motivated than did the facilitators for **PHYSICAL SCIENCE**.

The Technical Problems (TP) factor attained $F\ (3, 159) = 6.90$, $p < .05$. This indicates that significant differences were found between courses for student responses to items addressing the frequency of occurrence of technical difficulties. Subsequent tests were performed utilizing the Student-Newman-Keuls procedure. The factor scale score means from **SPANISH III** ($M = -.351$) and **ANATOMY & PHYSIOLOGY** ($M = -.038$) was significantly different from **JAPANESE I** ($M = .581$) and **PHYSICAL SCIENCE** ($M = .660$) at $p < .05$. This finding indicates that facilitators for **SPANISH III** and **ANATOMY & PHYSIOLOGY** were more satisfied with equipment

performance than were facilitators from **JAPANESE I** and **PHYSICAL SCIENCE**.

The next factor, Job Satisfaction (JS) netted F (3, 159) = 10.91, $p < .05$, indicating that significant differences were found between courses for facilitator responses concerning the degree to which the facilitator enjoyed the role of course mediator between the TI-IN teacher and the students. Subsequent tests were performed utilizing the Student-Newman-Keuls procedure. The factor scale score mean from **SPANISH III** (M = .885) was significantly different from **JAPANESE I** (M = -.165) and **ANATOMY & PHYSIOLOGY** (M = -.126), while all of these were significantly different from **PHYSICAL SCIENCE** (M = -1.801) at $p < .05$. This suggests that **SPANISH III** facilitators enjoyed their roles more than the other facilitators, while **JAPANESE I** and **ANATOMY & PHYSIOLOGY** facilitators enjoyed their role more so than **PHYSICAL SCIENCE** facilitators.

The Training (TR) factor attained F (3, 159) = 10.82, $p < .05$. This indicates that significant differences were found between courses for student responses to items addressing the adequacy of training. Subsequent tests were performed utilizing the Student-Newman-Keuls procedure. The factor scale score mean from **SPANISH III** (M = 1.40) differs significantly from the mean scores from **PHYSICAL SCIENCE** (M = .560), **ANATOMY & PHYSIOLOGY** (M = .003), and **JAPANESE I** (M = -.633). The mean score for **PHYSICAL SCIENCE** is also significantly higher than that of **JAPANESE I** on this factor.

This would suggest that **SPANISH III** facilitators felt better trained than the other facilitators, with **PHYSICAL SCIENCE** facilitators feeling better trained than **JAPANESE I** facilitators.

The final factor, Perceived Importance (PI), achieved F (3, 154) = 8.62, $p < .05$. This indicates that significant differences were found between courses for student responses addressing how crucial facilitators perceived their role to be. Subsequent tests were performed utilizing the Student-Newman-Keuls procedure. The factor scale score means from **JAPANESE I** (M = .356) and **ANATOMY & PHYSIOLOGY** (M = -.072) differs significantly from **SPANISH III** (M = -1.48) and **PHYSICAL SCIENCE** (M = 1.262), $p < .05$. This finding indicates that facilitators in **JAPANESE I** and **ANATOMY & PHYSIOLOGY** thought they played a more crucial role than did facilitators for **SPANISH III** and **PHYSICAL SCIENCE**.

IV. TEACHER EVALUATIONS

IV. Teacher Evaluations

A customized 44-item questionnaire was administered to the teachers of the televised course. Thirteen completed questionnaires were returned. These items addressed various facets of the program; all utilized a common Likert-type scale with response options of poor = 1, fair = 2, good = 3, and excellent = 4. The questionnaire, presented as Appendix E, attempted to probe various dimensions of the respondents' insights regarding the TI-IN program, as well as to cull the television teachers' perceptions of the primary strengths and weaknesses of the TI-IN United Star Network's programs and instructional processes.

The questionnaire was designed to distinguish *a priori* between seven separate program elements. These are: Production (P), Facilitators (F), Administration (A), Students (S), Instruction (I), Equipment Problems (EP), and Program Effectiveness (PE). These items, along with their respective mean scores, can be found in Appendix E. The abbreviated category labels are located in the left margin; the mean scores for each item in the right column.

The overall mean for the five Production (P) items was 4.1, indicating that most of the television teachers were at least moderately satisfied with both the production facilities and the competence of the production staff. Only one item (#6, M = 3.2) was in the neutral range, suggesting that the television teachers possibly felt that the

production budget was too low to handle requests for the production of specialized instructional materials.

The nine items comprising the Facilitator (F) dimension yielded a composite mean of 3.3. This indicates that most respondents held a neutral perception of the abilities of the facilitators. However, there was considerable variance within items in this category. Item #9 received particularly high ratings (M = 4.5), indicating that the responding teachers felt strongly that the facilitator's role was critical in effective instruction of students. Two particularly low scores (#13, M = 2.8; #14, M = 2.8) suggest that the teachers perceived the role of facilitator as one of mediation rather than instruction. This finding coincides with the findings in the Facilitator (F) dimension from the student opinion questionnaire (cf. p. 27).

The overall mean for the nine Administrative (AD) items was 3.4, indicating that most respondents were satisfied with the administrative elements of the program. Item #8 received particularly high ratings (M = 4.5), suggesting that the responding teachers believed that the school administrators involved in the program were very supportive. Respondents also felt that registration procedures could be improved (#32, M = 2.8) but were generally satisfied with the processing of paperwork during the academic year (#34, M = 3.3). One particularly low score was found on item #38 (M = 1.9), dealing with the frequency of use of the printers found on the A-V carts. During the site evaluation visits,

several facilitators and school administrators noted that most of the teachers could have used these printers more effectively. The finding here suggests that the teachers also see this as an area for improvement.

The seven items comprising the Student (S) dimension achieved a composite mean of 3.4. Item #30 received particularly high ratings (M = 4.4), indicating that teachers believed that most students were capable of handling the course work. Furthermore, item #29 (M = 3.5) suggests that most television teachers believed TI-IN students were more highly motivated than students in a traditional classroom. However, the response to item #25 (M = 2.7), would indicate that the teachers believed that students did not take advantage of all the help that was available to them.

The overall mean for the five Instruction (I) items was 4.1, indicating that the instructional procedures and content utilized in the TI-IN courses closely parallels that of their traditional teaching experiences. There was little variance for items in this dimension, suggesting that most respondents moderately agreed with all the items contained therein.

The next dimension, Program Effectiveness (PE), achieved a composite mean of 3.7. Item #20, which assessed any felt problems from not having students physically present, yielded a "neutral" mean score of 3.3. Item #22, which addressed the ability of the television teachers to

maintain an ideal pace working within the TI-IN format, also achieved a relatively neutral mean score of 3.3. These were the two lowest mean scores within this group. This would suggest that the teachers felt little or no disadvantage when comparing their television teaching experience with those of the traditional classroom environment.

The final dimension, <u>Equipment Problems</u> (EP), contained one item (#3, $\underline{M}$ = 3.2) which addressed the magnitude of any equipment problems the teacher had experienced. The neutral responses to this item suggested that most of the teachers had not found equipment malfunctions to be a major problem.

V. ADMINISTRATOR EVALUATIONS

V. Administrator Evaluations

A single, 24-item instrument was administered to school administrative officials at all TI-IN United Star Network sites in late May, near the end of the academic year. Responses were received from 113 administrators. Eighty-two percent of the responses were from males, while 18% were from females. Items 1-16 of the instrument utilized a common Likert-type scale, with response options of strongly disagree = 1, mildly disagree = 2, neither disagree nor agree = 3, mildly agree = 4, strongly agree = 5, which solicited degrees of agreement with the aforementioned items. Items 17-24 utilized response options which were specified at the conclusion of each statement. Most of these were self-reported frequencies, with the last item, #24, addressing administrative opinions of the program.

The first 16 items were designed to distinguish *a priori* between seven separate program elements. These are: Technical (T), Courses (C), Facilitators (F), Administration (A), Personal Involvement (PI), Teacher (TE), and Satisfaction (S). These items, along with their respective mean scores, can be found as Appendix F. The abbreviated category labels are located in the left margin; the mean scores for each item are in the right column.

After adjusting for directionality, the overall mean for the three Technical (T) items was 4.0, indicating that most administrators believed that the technical support was moderately satisfactory. In addition, response item #17

indicates that the administrators reported technical difficulties an average of "between three and ten times per term."

The Courses (C) dimension contained three items and yielded a composite mean of 4.0, with little variation among items in this dimension. The administrators apparently think that the TI-IN program has been a useful and integral part of their academic curriculum.

The four items comprising the Facilitator (F) dimension achieved a composite mean of 3.9. Items #8 (M = 4.1), which addressed the routine of the facilitator, #9 (M = 4.4), which addressed the competency and dedication of the facilitators, and #14 (M = 4.4), which concerned the importance of the facilitator, all achieved means in the "moderately agree" range. This would suggest that most of the administrators perceived their facilitators as competent, dedicated, and crucial to the success of the program. However, the administrators did not think that teacher certification should be a prerequisite to becoming a facilitator.

After adjusting for item directionality, the three items in the Administration (A) dimension achieved a composite mean of 3.5. There was little variance for items in this group, suggesting that most administrators perceived their role as moderately important to the success of the TI-IN program. They did not, however, (#11, M = 2.4) think that the responsibility of administering the TI-IN program

interfered with their other administrative duties. Administrators also reported an average of 1-2 hours per week spent overseeing the TI-IN program.

The Personal Involvement (PI) dimension contained two items achieving a composite mean of 4.0. This suggests that administrators think they have both viewed enough TI-IN telecasts and solicited sufficient opinions from facilitators and students to develop an informed opinion about the quality of the program. Administrators also reported (#18, M = 4.0) that they personally visited a United Star Network classroom on the average of 4-5 times per term.

One item, #16, achieving a mean of 4.3, addressed Satisfaction (S), by asking if administrators hoped to be able to continue to use distance learning courses in the future. Since most administrators reported they would like to continue, it can be construed that they were satisfied with the program. In fact, administrators indicated they were mildly to extremely pleased with the TI-IN United Star Network courses offered at their school (#24, M = 4.3).

Administrators also indicated that the instructional quality of the TI-IN courses was, on the average, "good" (#19, M = 4.2). They also rated the TI-IN teachers as equivalent in quality to the traditional classroom teachers at their school (#20, M = 3.3). In addition, administrators reported that students in the TI-IN program had a slightly higher level of interest and involvement in their course

work than students enrolled exclusively in traditional courses.

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VI. PARTNERS IN PROFESSIONAL GROWTH EVALUATIONS

VI. **PARTNERS IN PROFESSIONAL GROWTH** Evaluation

The customized questionnaire was administered to the Beginning Teachers (Partners) and Peer Coaches at all four **PARTNERS IN PROFESSIONAL GROWTH** sites located in: Lake County, CA; Mt. Ayr, IA; Flagler, CO; and Syracuse, KS. Respondents completed the questionnaires during the last week of the program. The return rate from each site was approximately 50%.

A single questionnaire was developed for use by both the Partners and the Peer Coaches. Items 1-4 collected background information on the participants. The remaining 42 items addressed various facets of the program; these items utilized a common Likert-type scale with response options of poor = 1, fair = 2, good = 3, and excellent = 4. The questionnaire, presented as Appendix G, attempted to probe various dimensions of the respondents' overall perceptions of the **PARTNERS** programming and to glean the participants' perceptions of the primary strengths and weaknesses of the program. Twelve items were directed towards the Partners exclusively, 7 items were reserved for the Peer Coaches, and 23 items were responded to by both groups.

The questionnaire was designed to distinguish *a priori* between nine separate program elements. These are: Administrative (AD), Technical (T), Attitudinal (AT), Support Materials (SM), Communicative (C), Information (I), Course Effectiveness (E), Environment (ENV), and

Satisfaction (S). These items, along with their respective mean scores can be found as Appendix G. The abbreviated category labels are located in the left margin; the mean scores for each item in the right column.

The overall mean for the six Administrative (AD) items was 3.3, indicating that most respondents were satisfied with the administrative elements of the program. Ms. Flaherty's overall performance was rated as "excellent," with a mean response of 3.7. However, item #22 yielded a particularly low mean score: 2.3. This would suggest that one area of particular concern to the respondents was the delay in the return of completed assignments by Ms. Flaherty.

The four items comprising the Technical (T) dimension achieved a composite mean of 3.1. There was little variance for items in this group, suggesting that most respondents rated the production quality, clarity of signal reception, and user friendliness of the equipment as "good."

The eleven items comprising the Attitudinal (AT) dimension achieved a composite mean of 3.4. This indicates that most respondents held a positive attitude toward the **PARTNERS** program. Item #38 received particularly high ratings ($M = 3.9$), indicating that the responding Beginning Teachers were highly disposed to continue their teaching career, which was one of the primary goals of **PARTNERS**. Another finding of note was the change in the Beginning Teachers' reported levels of self-confidence as a result of

taking the **PARTNERS** telecourse. The Beginning Teachers reported that their sel.-confidence in teaching prior to taking **PARTNERS** was "good" (M = 3.1; item #39). After participating in **PARTNERS**, their self-confidence was "excellent" (M = 3.8, item #40).

The one item which constituted the Support Materials (SM) dimension was the only opinion item on which significant difference between the Beginning Teachers and the Peer Coaches was attained. The Beginning Teachers rated the workbooks used in the course as "good" (M = 2.9), while the Coaches rated the workbooks as "excellent" (M = 3.8).

Two items, #16 and #20, comprised the Communicative (C) dimension. The composite score on this dimension was 3.6. This would suggest that both Dr. Bernhardt and Ms. Flaherty were rated by the participants as highly effective communicators.

Two items, #19 and #21, addressed the usefulness and quality of the Information (I) presented by Ms. Flaherty. These responses received a composite mean score of 3.7. This indicates that most respondents rated the content of the course extremely positively.

Responses to the twelve items comprising the Course Effectiveness (E) dimension yielded a composite mean score of 3.5. Of particular interest on this dimension are items #25 and #26. Peer Coaches rated their relationships with the Beginning Teachers (Partners) as "good" (M = 3.2) prior to exposure to the **PARTNERS** program. By the completion of

the course, this had increased to a rating of "excellent" ($\underline{M}$ = 4.0). Clearly **PARTNERS** yielded benefits in the affective as well as in the cognitive realm.

The one item, #11, constituting the Environmental (ENV) dimension achieved a mean of 2.7. Overall, this rating suggests that there is room for improvement in the viewing environment in the TI-IN classrooms.

The three items which comprised the Peer Coach Satisfaction (S) dimension achieved a composite mean rating of 3.4. One revealing finding can be seen from the responses to item #30, which queried the experienced teachers about their willingness to serve as a Peer Coach again. The respondents indicated that there was an excellent chance ($\underline{M}$ = 3.8) that they would continue participating in **PARTNERS** if given an opportunity to do so.

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VII. TI/IN United Star Network

TECHNICAL EDUCATION RESEARCH CENTERS (TERC)

TI-IN United Star Network

TECHNICAL EDUCATION RESEARCH CENTERS (TERC)

Project

During FY 1989, the TI-IN United Star Network implemented a collaborative project with **TECHNICAL EDUCATION RESEARCH CENTERS** (TERC). The **TERC** Star Schools project was one of the four grants awarded by the Department of Education. The **TI-IN/TERC** project attempted to combine student knowledge of course content, in this instance, a TI-IN Network Physics course, with an interactive telecommunication experiential environment. The assumption apparently was made that the technical aspects of mathematics and science are particularly difficult to teach when emphasis is placed on theory alone. Thus, the **TI-IN/TERC** learning process focused on hands-on participation, communication, questioning, and thought.

The **TI-IN/TERC** Star Schools project established 11 Resource Centers at TI-IN Network Physics sites across the country. Those schools that doubled as resource centers and **TI-IN/TERC** sites were:

(1) Bennett County High School, Martin, SD

(2) Chugwater High School, Chugwater, WY

(3) Circleville High School, Circleville, WV

(4) Creswell High School, Creswell, NC

(5) Dime Box High School, Dime Box, TX

(6) Ganado High School, Ganado, TX

(7) Huntland Schools, Huntland, TN

(8) North Stokes Jr/Sr High School, Danbury, NC

(9) St. Anne Community High School, St. Anne, IL

(10) Toluca High School, Toluca, IL

(11) Weed High School, Weed, NM

The centers provided training, course material, equipment, and accessories, as well as support and assistance for participating teachers. Students worked in research teams at each location, and often joined with students at other locations to work on specific physics projects. The ability of students across the country to be joined together via telecommunication--satellite video/audio plus computer--in work as well as fellowship proved to be one of the most beneficial aspects of the **TI-IN/TERC** project. Network moderators and scientists continually provided feedback to students and aid to teachers as needed. Thus, students were able to learn by doing, while also receiving valuable tips from real-world professionals.

The **TI-IN/TERC** program initiated its curriculum via innovative curriculum modules designed to meet the students' needs in the course and unite them with industry professionals. **TI-IN/TERC** curriculum modules were to be the learning environments for students, teachers, and professionals. The modules revolved around a core activity designed to focus students on a scientific investigation. The curriculum modules gave students flexibility and

resources that they could not find in a typical classroom setting.

Five modules served as pilot tests during Spring 1989. _Intronet_ began all classes and served as an introduction session enabling students to grasp the nature of telecommunications, as well as the idea of the project investigations. _Polling_ modules introduced students to data analysis and basic statistical concepts. _Design_ segments challenged students to develop their own problem-solving strategies to cope with the challenge of the investigation. The _Radon_ module equipped them with tools to use in problem solving. A data base was established to hold the system-wide data derived from the Polling and Radon modules. _Weather_, as one would imagine, gave students the opportunity to study weather phenomena in a module environment. Lastly, _Patterns from Iteration_ consisted of mathematical investigations that students were dared to complete without the help of teachers, professionals, textbooks or test booklets. Students learned to watch for patterns in problems and predict from past results and experiences. Overall, these TI-IN/TERC module settings allowed students to conquer difficult class projects.

For the Fall of 1989, two additional units were introduced to the module setting for evaluation. _Trees_ and _Tides_ were in the developmental stage when the previously mentioned modules were pilot tested, but hoped to follow next in the line of implemented TI-IN/TERC module curricula.

Perhaps the most important aspect of the **TI-IN/TERC** Star Schools project was the extensive plan to provide support and aid to teachers as they worked through these pilot class projects. The teleconference connecting **TI-IN/TERC** sites allowed teachers the opportunity to exchange concerns with one another and learn from shared experiences. Hands-on training was also provided for students during the school year. As the year progressed, the teachers were free to seek help from fellow teachers, staff personnel and real-world professionals via the interactive telecommunication network. The electronic mail system was often the source of information exchange as classes around the country worked together to solve investigative projects.

The **TI-IN/TERC** project is being evaluated separately by Dr. Pamela Pease, TI-IN United Star Network Director, and this evaluation team did not obtain quantitative indices of the success of the project. Two site visits were conducted at **TI-IN/TERC** schools however; one at St. Anne Community High School (IL) and the second at Huntland Schools (TN). Those reports can be found on pp. 155-177 of Volume II: *Technical Reports: Site Visits.*

VIII. APPENDICES

APPENDIX A

APPENDIX A

TI-IN STUDENT QUESTIONNAIRE

DIRECTIONS

Your responses on this questionnaire will be made on a computer coded answer sheet. Be sure to use only a black lead #2 pencil. The first task is to enter your name on the sheet at the top left hand corner and the corresponding "bubble" below each letter in your name. Then write your school name in the top left hand margin of the answer sheet. Under the boxes marked IDENTIFICATION NUMBER on the answer sheet you should enter your social security number. Under the boxes marked SPECIAL CODES on the answer sheet fill in your school's zip code. Don't forget to completely fill in the corresponding "bubbles" underneath these numbers. Also please fill in the sex and your level of education sections on side one of the answer sheet. Use 12 for High School, 13 for College degree, 14 for Master's degree, 15 for a Doctorate.

If you will notice the right half of side one, you will see that the scoring begins with question 1 and goes on to question 100 at the bottom of the page. The computer scoring sheet gives an example of the correct marking procedures on side two.

For the first set of questions, please note whether you disagree or agree with the statement. Using the enclosed "General Purpose NCS Answer Sheet," let A (or 1) = strongly disagree, B (or 2) = mildly disagree, C (or 3) = neither disagree nor agree (i.e., neutral or no opinion), D (or 4) = mildly agree, and E (or 5) = strongly agree. Please fill in the appropriate circle for each item. See the following example.

EX. It is harmful to stare into the sun.

You will most probably strongly agree with this statement so you should fill in the number "5". It is located under the letter "E" on your answer sheet.

In the second section, use the response options which are specified at the conclusion of each statement or question. Please continue to use the General Purpose NCS Answer Sheet to record your reponses.

WORK CAREFULLY AND BE SURE THAT THE NUMBER OF THE QUESTION IN THE QUESTIONNAIRE AND THE NUMBER ON THE ANSWER SHEET ARE THE SAME. IF YOU SKIP A QUESTION IT IS EASY TO GET OUT OF SEQUENCE.

For items 1-79, please note whether your disagree or agree with each statement. Using the enclosed "General Purpose NCS Answer Sheet," let A (or 1) = strongly disagree, B (or 2) = mildly disagree, C (or 3) = neither disagree nor agree (i.e., neutral or no opinion), D (or 4) = mildly agree, and E (or 5) = strongly agree. Please fill in the appropriate circle for each item.

Category	Item	Mean
	1. People in large metropolitan areas are taking courses not offered at my school.	
	2. I took this TI-IN course because my school doesn't have one like it.	
	3. This was my first distance learning (satellite-received interactive television) course.	
MA	4. I really wanted to take this course.	3.7
CJ	5. I would like to register for more distance learning courses if they are available.	3.0
	6. My school district seems to be committed to the TI-IN United Star Network.	
H	7. Extra materials for this course cost me money.	2.1
	8. Textbooks were readily available.	
	9. The cost of the course to the students is reasonable for this class.	
I	10. The structure of this class was organized.	3.6
F	11. My facilitator and teacher cooperated very well.	4.2
MA	12. I have looked forward to coming to this class.	3.2
	13. I always came to this class on time.	
MA	14. I have told my friends how much I have learned in this class.	3.2
MA	15. Taking this TI-IN course has caused me to use the library more often than I used to.	2.3
I	16. The papers and tests for this course were graded and returned in a reasonable amount of time.	3.6
I	17. I was tested often enough to know what grade I was getting in the class.	3.6

Note: Instructional Administration = I
Facilitator = F
Teacher = T
Course Judgement
Empathy = E
Motivation and Accomplishment = MA
Handset = H

Category		Mean
CJ	18. I think I would have learned more if I had taken this course in a regular classroom setting.	3.4
CJ	19. I think I would have gotten a better grade if I had taken this course in a regular classroom setting.	3.3
CJ	20. This course met my expectations.	3.3
CJ	21. I feel I have learned a lot in this TI-IN course.	3.5
	22. My experience with this TI-IN course has increased my desire to graduate from high school.	
CJ	23. This TI-IN course was better than courses normally available at my school.	3.1
	24. People who take TI-IN courses are more motivated than other students.	
	25. Televised courses give students an advantage over those who don't take them.	
	26. Most of the time the technological elements of the course worked quite well.	
H	27. I have used the telephone hand-set quite often.	3.3
H	28. I liked using the hand-set to talk to the teacher.	3.1
H	29. Using the hand-set has helped me be more confident about speaking in front of others.	2.9
	30. I didn't ask questions over the hand-set because I was afraid that I would sound stupid in front of everyone.	
F	31. My facilitator was effective in administering and supervising class.	4.1
F	32. My facilitator encouraged us to use the telephone hand-set so we would get used to it.	4.0
	33. There were so many students in my section of the TI-IN course that there was no time for individual attention from my facilitator.	
F	34. My facilitator was interested in my progress in this class.	4.0
F	35. I really liked my facilitator.	4.2
	36. My facilitator was:	

Category		Mean
F	37. enthusiastic	4.0
F	38. interested in the topic	3.9
F	39. professional	3.8
F	40. committed	4.1
F	41. organized	4.1
F	42. good humored	4.1
F	43. supportive	4.2
F	44. expert on the topic	2.9
CJ	45. I think I have learned at least as much from my TI-IN teacher as I have from my classroom teachers.	3.2
T	46. The teacher presented material visually when it was appropriate to do so.	4.1
E	47. The teacher repeated difficult concepts, processes, etc., until we knew them well.	3.7
	48. There were so many students taking the class that there was no time for individual attention from my TI-IN teacher.	
I	49. My teacher gave me adequate feedback on papers/exams.	3.4
E	50. I could always tell exactly what my teacher expected of me.	3.3
T	51. My teacher used many types of visual materials (e.g., diagrams, pictures, charts, etc.) to explain concepts.	4.0
E	52. There was sufficient time in class to ask questions.	3.5
T	53. My teacher encouraged us to ask him/her questions.	4.1
E	54. I felt like my teacher knew me personally.	2.9
T	55. I really liked my teacher.	3.8
	56. My TI-IN teacher was:	
T	57. enthusiastic	4.2
T	58. interested in the topic	4.5
T	59. professional	4.3

Category		Mean
T	60. committed	4.4
T	61. organized	4.0
T	62. good humored	4.1
T	63. supportive	4.1
T	64. expert on the topic	4.4
	65. In our school, the popular kids are not afraid to be smart.	
	66. This course has helped me become more aware of the differences between myself and people from other parts of the country.	
	67. This course has helped me to become aware that I can compete nationally with students like me.	
	68. This course has helped me to become aware that I have many of the same scholastic skills as people in large metropolitan areas.	
	69. I have made new friends by taking this course.	
	70. I have more confidence now in my scholastic abilities than I did before I took this course.	
	71. I feel that even in a remote, rural area, it is possible to be part of a larger, scholarly community.	
	72. This TI-IN course showed me jobs I could do that I was not previously aware of.	
MA	73. My ideas about what jobs are available in my interest area have changed since I took this course.	2.6
	74. This course helped me realize that I am capable of acheiving goals as long as I am willing to work hard to achieve them.	
	75. I want to graduate and get my high school diploma.	
	76. I plan to enroll in a 4-year college upon high school graduation.	
MA	77. I would like to take college classes on the same topic as my TI-IN course.	3.1
MA	78. I want to go to college to pursue a degree in the topic	2.5

Category			Mean
		area covered in my TI-IN course.	
MA	79.	This course will be advantageous to my college career.	3.4

The remaining items, #80-105, use response options which are specified at the conclusion of each statement or question. Please continue to use the General Purpose NCS Answer Sheet to record your responses, beginning with #80.

Please read and answer the following:

This is a list of electronic media you may have in your household. Please indicate whether your house has one or more of each itme, and how often (how many times) you personally use each type of item in a one week period.
Fill in the appropriate circle reflecting the number on your bubble sheet.

80. Does your household have a RADIO: Yes (1) No (2)

81. How many? 1 2 3 4 5 or more

82. How often used? 1 2 3 4 5 or more

83. Does your household have a TELEVISION: Yes (1) No (2)

84. How many? 1 2 3 4 5 or more

85. How often used? 1 2 3 4 5 or more

86. Does your household have a VCR: Yes (1) No (2)

87. How many? 1 2 3 4 5 or more

88. How often used? 1 2 3 4 5 or more

89. Does your household have a COMPUTER: Yes (1) No (2)

90. How many? 1 2 3 4 5 or more

91. How often used? 1 2 3 4 5 or more

92. Does your household have a STEREO: Yes (1) No (2)

93. How many? 1 2 3 4 5 or more

94. How often used? 1 2 3 4 5 or more

95. Does your household have a COMPACT DISK PLAYER: Yes (1) No (2)

96. How many? 1 2 3 4 5 or more

97. How often used? 1 2 3 4 5 or more

98. Do your regular class teachers use the following in class? (Fill in a "1" for "yes, and a "2" for "no" on your bubble sheet.)

99. Videos?	YES (1)	NO (2)
100. Films?	YES (1)	NO (2)
101. Computers?	YES (1)	NO (2)
102. Audio tapes?	YES (1)	NO (2)

103. Do you pay as much attention, more attention, or less attention to your TI-IN teacher as to your regular classroom teachers? (Fill in the number indicated on your bubble sheet.)

Less attention	As much attention	More attention
(1)	(2)	(3)

104. What is your overall grade point average (using a letter grade system)?

A (1) B (2) C (3) D (4) F (5)

105. What is your age?

12-13	14-15	16-17	18-19	over 19
(1)	(2)	(3)	(4)	(5)

APPENDIX B

COMPREHENSIVE ANATOMY AND PHYSIOLOGY EXAM FOR TI-IN UNITED STAR NETWORK

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DIRECTIONS

Your responses on this exam will be made on a computer coded answer sheet. The first task of this exam is to enter your name on the sheet at the top left hand corner and the corresponding "bubble" below each letter in your name. Be sure to fill in the circles completely uning only a black lead #2 pencil. Then write your school name in the top left hand margin of the answer sheet. Under the boxes marked IDENTIFICATION NUMBER on the answer sheet you should enter your social security number. Under the boxes marked SPECIAL CODES on the answer sheet fill in your school's zip code. Your facilitator will have these numbers for you. Don't forget to completely fill in the corresponding "bubbles" underneath these numbers. Also please fill in the sex and grade level sections on side one of the answer sheet.

If you will notice the right half of side one, you will see that the scoring begins with question 1 and goes on to question 100 at the bottom of the page. The computer scoring sheet gives an example of the correct marking procedures on side two. Be sure to fill in the circles completely using only a black lead #2 pencil. You will notice that for each question there are five possible responses marked 1, 2, 3, 4, and 5 and that those numbers match A, B, C, D, and E on your questionnaire. True (T) and False (F) answeres are simply marked 1 for True and 2 for False on your answer sheet. See the following examples.

EX. The sum of 9 and 6 is:

a. 6
b. 2
c. 3
d. 15

The correct answer is "15" so you should fill in the circle containing the number "4". It is located under the letter "D" on your answer sheet.

EX. T or F When it rains, none of the rainwater will evaporate.

The correct answer is false (F) so you should darken in the circle containing the number "2". It is located under the letter "B" on your answer sheet.

WORK CAREFULLY AND BE SURE THAT THE NUMBER OF THE QUESTION IN THE QUESTIONNAIRE AND THE NUMBER ON THE ANSWER SHEET ARE THE SAME. IF YOU SKIP A QUESTION IT IS EASY TO GET OUT OF SEQUENCE.
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1. Heterostasis is a bodily state in which all body organs and systems are functioning optimally in relationship to one another and health is maintained.

   True (1) False (2)

2. Select one of the following which is a type of tissue:

   a. bone
   b. muscle
   c. connective tissue
   d. all are types of tissue

3. Which of the following stages of mitosis explains why both daughter cells resemble the parent cell?

   a. the chromosomes split after lining up along the center of the cell
   b. the chromosomes move to opposite ends of the cell
   c. the cell divides
   d. the nucleus reforms in each new cell

4. Which of the following major internal organs is responsible for destroying the old blood cells?

   a. lungs
   b. heart
   c. spleen
   d. stomach

UNIT II: INTEGUMENTARY SYSTEM

5. Which of these skin organs plays a major role in excretion of waste?

   a. sweat glands
   b. sebaceous glands
   c. epidermis
   d. capillaries

6. Loss of fluids, electrolyte imbalance, less efficient excretion of toxic substances, and inability to regulate temperature are consequences of:

a. first degree burns over a large area of the body
b. third degree burns over a very small area of the body
c. second degree burns over a small area of the body
d. third degree burns over a very large area of the body

7. Epithelial (skin) cancer is one of several types of cancer. An example of an epithelial cancer is:

a. sarcoma
b. lymphoma
c. leukemia
d. malignant melanoma

8. The body contains hair in almost every location, however, one area where no hair is located is:

a. skin of the eyelids
b. behind the ear
c. palms of the hand
d. inside bend of the elbow

UNIT III: SKELETAL SYSTEM

9. Which of the statements below characterizes the firs step of the development of osseous tissue in intramembraneous bone:

a. osteogenetic fibers are deposited in the bone matrix
b. membranes form where the bones will later be positioned
c. calcareous granules form
d. successive layers of membrane are deposited as bony growth

10. Which of the follwoing skeletal elements enables maintaining an upright position?

a. phalanges
b. skull
c. vertabrae
d. head and neck of the femur

11. At what stage of development does the epiphyseal growth plate become bone?

a. fetus
b. infancy
c. after full growth has been reached
d. before puberty begins

12. Which of the following statements is most indicative of the presence of osteoporosis?

a. a lack of calcium in the diet

b. the patient is fifteen
c. the bones are brittle
d. the patient is post-menopausal

UNIT IV: MUSCULAR SYSTEM

13. Which of the following pairs of muscle and type of muscular control fit with one another?

    a. nonstriated muscle--involuntary muscle control
    b. cardiac muscle--involuntary control
    c. striated muscle--voluntary control
    d. all of the above
    e. none of the above

14. Muscles work in pairs as antagonist and protagonist to enable movement.

    True (1) False (2)

15. Which of the following is related to the production of energy?

    a. oxygen debt
    b. fatigue
    c. ATP
    d. heat production

16. Select the non-striated muscle whose contractions contribute substantially to the birth of a baby from the following group:

    a. pharynx
    b. uterus
    c. gall bladder
    d. trachea

UNIT V: NERVOUS SYSTEM

17. Biologists are in agreement about how the endocrine system, the nervous system, and motor responses interact to enable cognition and emotion.

    True (1) False (2)

18. One of the primary characteristics of the reflex mechanism involves the ability of the sensory motor-neuron system to bypass the brain and institute immediate action in response to a stimulus such as pain.

    True (1) False (2)

19. The two basic functions of the nervous system involve the transmission of messages from the senses to the brain and the transmission of messages from the brain to the body.

True (1) False (2)

UNIT VI: ENDOCRINE SYSTEM

20. Which of the following ecocrine glands functions to supply one of the hormones necessary for growth to occur?

a. pituitary gland
b. hypothalamus gland
c. pancreas
d. adrenal gland

21. Which of these warning signals may mean a diabetic is in serious trouble and needs immediate medical care?

a. breath odor like fingernail polish remover (acetone)
b. loss of motor control
c. sleepiness
d. changes in personality
e. all of the above

22. Which of the following glands is located in the brain?

a. pituitary gland
b. thyroid gland
c. pancreas
d. adrenal gland

23. The endocrine system and the nervous system mutually influence human behavior, working synergistically.

True (1) False (2)

UNIT VII: BLOOD

24. Of the following substances, which is responsible for initiating clotting?

a. red blood cells
b. platelets
c. plasma
d. white blood cells

25. Phagocytosis is the process by which white blood cells (leukocytes) engulf foreign substances and attempt to destroy them.

True (1) False (2)

26. The component of blood which carries oxygen and carbon dioxide to aid in respiration is:

    a. platelets
    b. plasma
    c. red blood cells
    d. white blood cells

27. Which of the following lab tests using blood serves as strong indicator of liver function?

    a. electrolytes
    b. bilirubin
    c. glucose tolerance
    d. prothrombin

UNIT VIII: CIRCULATORY SYSTEM

28. Which of these parts of the heart carries oxygenated blood to the rest of the body?

    a. pericardium
    b. right auricle and ventricle
    c. valves
    d. left atrium and ventricle

29. Which of the following factors contributes to a deterioration of heart function often resulting in congestive heart failure?

    a. age
    b. chemicals
    c. emotion (particularly unrelieved stress)
    d. birth control pills

30. Which of the lists of symptoms is most indicative of congestive heart failure rather than heart attack or angina?

    a. chest pain--interrupted supply of oxygen to heart muscle but relieved by resting
    b. pain in the left arm along with weakness, nausea, and a general sense of foreboding
    c. acute weakness, coughing, swollen ankles and other signs of fluid accumulation, difficulty breathing
    d. acute pain in chest, characterized as pressure or squeezing, unrelieved by rest or begins to subside and then comes on even more strongly

31. If there is a family history of heart disease, which of these factors is especially essential in reducing the risk of heart disease?

    a. maintain low serum cholesterol levels
    b. refrain from smoking cigarettes
    c. remain physically active
    d. all are essential

UNIT IX: LYMPHATIC SYSTEM

32. If you have a head cold, which lymph glands are likely to indicate the presence of infection?

    a. those in thorax
    b. those in neck
    c. those in spleen
    d. those in ilium

33. Cellular immunity is acquired when B cells produce antibodies which attack invading agents and it is most effective against viral or bacterial infection.

    True (1) False (2)

34. Humoral immunity is acquired when T cells attach themselves to invading material and destroy it and it is most effective against parasites, cancer and foreign tissue.

    True (1) False (2)

35. Which of the following definitions most closely matches a diagnosis of AIDS?

    a. there is an uncontrolled increase in T-suppressor cells and the immune system no longer functions to protect itself against such diseases as Kaposi's sarcoms and pneumonia
    b. the lymph tissue in the neck, chest, spleen, and liver are usually involved--with early detection and radiation and chemotherapy there is a 90-95% cure rate
    c. the bone marrow is affected, shor remissions are possible, but death is usually inevitable
    d. a skin biopsy is used to detect this type of cancer of the lymph system and it is very difficult to treat

UNIT X: RESPIRATORY SYSTEM

36. Which of these substances has been implicated in causing lung cancer and other respiratory illnesses?

    a. asbestos

b. smoking
c. coal dust
d. nuclear fallout
e. all of the above

37. Exercise expands and strengthens respiratory function, improving it substantially.

True (1) False (2)

38. Select the component of the respiratory system in which oxygen is brought into the blood stream and carbon dioxide released from the blood stream.

a. larynx
b. alveolar sacs
c. trachea
d. bronchii

39. If smoking is discontinued, the lungs have the capacity to cleanse themselves over a period of years, eventually returning to a presmoking state unless irreversible damage has occured.

True (1) False (2)

UNIT XI: DIGESTIVE SYSTEM

40. Select the organ of the gastrointestinal tract which produces bile to aid in the process of digestion.

a. gall bladder
b. appendix
c. pancreas
d. liver

41. Which disease of the digestive system is usually associated with the production of hydrochloric acid?

a. gastritis
b. anorexia nervosa
c. ulcer
d. diarrhea

42. Which of the following phases of digestion is mechanical?

a. bile mixes with food
b. insulin breaks down sugar
c. chewing breaks food into smaller bits
d. saliva mixes with food and softens it

43. Which statement about the digestive system is true?

a. insulin is produced by the islets of Langerhans
b. colitis is the normal state of the colon
c. more males then females get anorexia nervosa
d. babies with Rh positive blood born to women with Rh negative blood usually have normal bilirubin levels

APPENDIX C

COMPREHENSIVE PHYSICAL SCIENCE EXAM FOR TI-IN UNITED STAR NETWORK

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DIRECTIONS

Your responses on this exam will be made on a computer coded answer sheet. The first task of this exam is to enter your name on the sheet at the top left hand corner and the corresponding "bubble" below each letter in your name. Be sure to fill in the circles completely using only a black lead #2 pencil. Then write your school name in the top left hand margin of the answer sheet. Under the boxes marked IDENTIFICATION NUMBER on the answer sheet you should enter your social security number. Under the boxes marked SPECIAL CODES on the answer sheet fill in your school's zip code. Your facilitator will have these numbers for you. Don't forget to completely fill in the corresponding "bubbles" underneath these numbers. Also please fill in the sex and grade level sections on side one of the answer sheet.

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EX. The sum of 9 and 6 is:

a. 6
b. 2
c. 3
d. 15

The correct answer is "15" so you should fill in the circle containing the number "4". It is located under the letter "d" on your answer sheet.

EX. T or F When it rains, none of the rainwater will evaporate.

The correct answer is false (F) so you should darken in the circle containing the number "2". It is located under the letter "B" on your answer sheet.

WORK CAREFULLY AND BE SURE THAT THE NUMBER OF THE QUESTION IN THE QUESTIONNAIRE AND THE NUMBER ON THE ANSWER SHEET ARE THE SAME. IF YOU SKIP A QUESTION IT IS EASY TO GET OUT OF SEQUENCE.

****

SECTION I: MOTION AND FORCE

1. Of the following objects in motion, identify which one demonstrates circular motion.

   a. a train moving on a track
   b. an object falling from a certain height
   c. the horse going up and down on a merry-go-round
   d. a rotary crank handle on a music box

2. If you know that John has driven his car at 40 mph for 3 1/2 hours, what distance has he gone? (Hint: the definition of speed suggests that speed is measured in terms of the movement of a body from one position to another over time.)
   a. 120 miles
   b. 140 miles
   c. 110 miles
   d. 130 miles

3. The physical phenomena which is defined by a body at rest until an external force supplies the power to move it is called:

   a. parallax
   b. harmonic motion
   c. inertia
   d. perigee

4. A force vector is a phenomenon which:

   a. indicates the direction the force is moving in
   b. measures how fast a mass is traveling
   c. measures how much force it will take to move an object
   d. indicates the weight of the mass in relationship to gravity

5. The follwoing objects are either accelerating or not--select the <u>one</u> example which is accelerating.

   a. the car's speed remains the same
   b. the car's speed changes from 40 mph to 35 mph
   c. the car's speed changes from 5 mph to 25 mph
   d. the car changed direction from NE to N, but its speed remained the same

6. Which of the following mass-velocity combinations has the greatest momentum?

   a. mass=36, velocity=90 mph
   b. mass=36, velocity=45 mph
   c. mass=95, velocity=30 mph
   d. mass=95, velocity=45 mph

7. Velocity and mass are the factor which influence the measurement of kenetic energy. Compare the objects below which have either the same mass or the same velocity and determine which set of mass and velocity has the greatest amount of kinetic energy.

   a. mass=5 velocity=10
   b. mass=5 velocity=15
   c. mass=10 velocity=5
   d. mass=15 velocity=5

8. Which of the following is the definition of a newton?

   a. m-> 1 ft/sec^2 when F=1 lb
   b. F-> kma
   c. F->kg m/sec^2
   d. F->gm 16ft/sec

9. A heavy ball is thrown and caught by a small child who falls backward from the weight. This is an example of:

   a. Newton's First Law of Motion
   b. Newton's Second Law of Motion
   c. Newton's Third Law of Motion
   d. Newton's Law of Universal Gravitation

10. The basic physical principle which allows rockets to work and enables space travel is __________.

   a. Newton's Third Law of Motion
   b. the step principle
   c. centripital force
   d. the center of gravity

SECTION II: WORK AND SIMPLE MACHINES

11. Work is defined through the relationship between the distance an object is moved and the force required to change its position. If one object weighs 50 lbs and another object weighs 100 lbs and they are moved a distance of 4 feet, identify the amount of work needed to move them. W = m x d

    a. 50 and 100
    b. 200 and 400
    c. 100 and 200
    d. 12.5 and 25

12. A device utilizing force efficiently to complet a task is called a simple machine.

    True (1) or False (2)

13. One mechanical device which exemplifies the use of an inclined plane is the car jack. If the ratio of the length and height of the inclined plane it forms is comprised of 2 ft of lenght and 4 ft of height, calculate the force advantage of using the car jack. FA = L/h

    a. 4
    b. 7
    c. 1/2
    d. 3

14. The conservation of energy implies that:

    a. energy can be transfered from one state to another with no loss in the total amount of energy potential
    b. energy is either being used or being stored in the form of potential energy
    c. energy is reciprocally exchanged with mass
    d. energy exists in forces acting on bodies in pairs
    e. all of the above

15. Pam wants to move a box which weighs 180 lbs. She is trying to calculate the effort force required to move the box up an incline plane which is 3 ft high and 9 ft long. FA = L/h Feff = Flif/FA How much effort force will it take to move the box?

    a. 20
    b. 30
    c. 60
    d. 90

16. Balance the lever in the follwoing situation: Flif = 10 lbs Llif = 5 ft (Leff = Flif/Feff x Llif).

a. Leff = .10
b. Leff = 1.0
c. Leff = 10
d. Leff = .01

17. Which of the following descriptions defines a fulcrum?

a. A bar turning from a given point
b. the speed at which work is completed
c. the strength of gravity at the equator
d. the support which identifies the balance point of a lever

18. In the following experiment identify the variable(s) which are manipulated, the variables which react to teh manipulation and the variable(s) held constant. Jerry wanted to find out how changing the weights of objects would change the distance they had to be from the fulcrum for balancing of the weights to occur. Jerry used 5, 7, and 10 lb weigths at one end of the board and kept a 20 lb weight at the other end. The distance of the 20 lb weight from the fulcrum was a constant of 2 ft. Which of those variables reacted to the manipulated variable?

a. 5, 7, and 10 lbs
b. the distance of 5, 7, and 10 lbs from the fulcrum
c. 20 lbs
d. 2 ft

19. If you have a pulley diagram, ho'/ could you calculate the force advantage of the pulleys?

a. the # of segments contacting the directional pulleys
b. the # of segments in contact with the whole system
c. the # of segments contacting the lifting pulleys
d. subtract the # of segments contacting the lifting pulleys from the # of pulleys in contact with the whole system

20. You have a catalog with diagrams of pulley systems and you know that the motor you want to lift wieghs 700 lbs. What is the force required to lift the motor if there are 10 segments on the directional pulleys and 10 segments on the lifting pulleys of the pulley system you are considering buying?

a. 35
b. 45
c. 60
d. 70

SECTION III: SOUND AND WAVES

21. Which of the following rankings of the movement of sound through various mediums reflects how fast sound can move through those mediums?

    a. 1st gases, 2nd liquids, 3rd solids
    b. 1st solids, 2nd liquids, 3rd gases
    c. 1st liquids, 2nd gases, 3rd solids
    d. 1st solids, 2nd gases, 3rd liquids

22. A wave is normally characterized by the transferrence of energy through some medium in a pattern of activity.

    True (1) False (2)

23. The velocity (speed) of sound at 20 degrees Celcius is:

    a. 344 mi/sec
    b. 186,000 mi/sec
    c. 344 m/sec
    d. 300,000,000 m/sec

24. A sound at 140 decibels is not harmful to the human ear.

    True (1) False (2)

25. When a woman is pregnant, one of the tests frequently used to detect fetal heartbeat and other fetal functions is an application of a sound technology. Which sound technology makes that application possible?

    a. sonar
    b. ultrasound
    c. echo
    d. oscillation

26. If a hertz is measured by the number of oscillations per second, and if frequency is measured by dividing the length of one wave cycle by the time it takes to complete that cycle, how many hertx are contained in a wave where 4 cycles take 16 sec to complete?

    a. 4 hertz
    b. 2 hertz
    c. 1/16 hertz
    d. 1 hertz

27. If a wave moves 400 ft in 100 secs., what is the speed of the wave?

    a. 1/4th ohm
    b. 40,000 amplitudes
    c. 8 joules
    d. 4 ft/sec

28. Radio wave, radar, visible light, ultraviolet light, and x-rays are all typical of what type of waves?

    a. transverse waves in which the waves are parallel to the direction of the force which originated them.
    b. longitudinal waves in whcih the waves are traveling in the same direction as the force which originated them
    c. transverse waves in which the waves are at right angles to the direction of the force which originated them
    d. longitudinal waves in which the waves are transverse to the direction of the force which originated them

29. Identify which of the following sound levels is within the range capable of being heard by the human ear.

    a. 1 kHz
    b. 5 Hz
    c. 50 kHz
    d. 200 kHz

30. Which of the follwing waveforms have the highest pitch?

    a. 45 Hz
    b. 15 kHz
    c. 90 Hz
    d. 10 kHz

31. It is not possible for two waves to have the same wavelength but different amplitude.

    True (1) False (2)

32. When a compressional wave travels through matter, the particles of matter ____________.

    a. do not move at all
    b. move back and forth but are not carried along with the wave
    c. move back and forth and are carried along with the wave
    d. spread farther and farther apart like an expanding balloon

33. The greater the number of compressions that arrive per second, the greater is the ____________ of the wave.

a. amplitude
b. wavelength
c. frequency
d. wave speed

SECTION IV: LIGHT

34. The properties of polarized light are evidence for a model of light as ______________.

a. particles
b. compressional waves
c. transverse waves
d. the highest frequency radiation in the magnetic spectrum

35. A light phenomenon that cannot be explained by the wave theory is ____________.

a. diffraction
b. the photoelectric effect
c. refraction
d. reflection

36. Which of the following is not evidence that light is a form of energy?

a. plants require light to produce food from carbon dioxide and water
b. light produces changes in photographic film
c. light converts products in exhaust to poisons
d. light is dispersed by a prism

37. The colors in light that are slowed the most when passing through a glass prism are _____ _____.

a. violet and blue (shortest wavelengths)
b. red and orange (longest wavelengths)
c. green (intermediate wavelength)
d. none of the above; all colors are slowed equally

38. A red shirt is red because _________.

a. one of the primary colors is red
b. red is the only color that is not polarized
c. red is the only color that is not absorbed
d. all the colors except red are reflected

39. Light has the properties ___________.

a. only of waves
b. only of particles
c. of both waves and particles

40. Polarized light waves
a. contain all the colors in the spectrum
b. reflect off filters
c. vibrate in only one direction
d. vibrate in all directions

PART V: SAFETY AND MEASUREMENT

41. The mass of 50 mL of water is ________.

a. 50 kg
b. 50 km
c. 50 mg
d. 50 g

42. A balance is an instrument used to measure __________.

a. volume
b. length
c. mass
d. time

43. You would most likely measure the length of a football field in ________.

a. meters
b. grams
c. liters
d. centimeters

44. A hypothesis that has survived many tests and seems to explain many observations is ____________.

a. a theory
b. the scientific method
c. data
d. a variable

45. A kilogram is __________.

a. 100 grams
b. 10 grams
c. 1000 grams
d. 10,000 grams

46. When should you wear safety goggles?

a. when using chemicals
b. when heating glassware
c. when using a bunsen burner
d. all of the above

47. If you see some chemical on the ground, you should _______.

a. taste it and see if you can tell what it is
b. carefully put it back in the jar where it came from
c. clean it up and dispose of it
d. leave it for someone else to find

48. If you spill acid on yourself, you should ________.

a. rinse with on a base to neutralize it
b. rinse with water
c. blot it dry with paper
d. wipe it off with your shirt

APPENDIX D

APPENDIX D

TI-IN FACILITATOR QUESTIONNAIRE

DIRECTIONS

Your responses on this questionnaire will be made on a computer coded answer sheet. Be sure to use only a black lead #2 pencil. The first task is to enter your name on the sheet at the top left hand corner and the corresponding "bubble" below each letter in your name. Then write your school name in the top left hand margin of the answer sheet. Under the boxes marked IDENTIFICATION NUMBER on the answer sheet you should enter your social security number. Under the boxes marked SPECIAL CODES on the answer sheet fill in your school's zip code. Don't forget to completely fill in the corresponding "bubbles" underneath these numbers. Also please fill in the sex and your level of education sections on side one of the answer sheet. Use 12 for High School, 13 for College degree, 14 for Master's degree, 15 for a Doctorate.

If you will notice the right half of side one, you will see that the scoring begins with question 1 and goes on to question 100 at the bottom of the page. The computer scoring sheet gives an example of the correct marking procedures on side two.

For the first set of questions, please note whether you disagree or agree with the statement. Using the enclosed "General Purpose NCS Answer Sheet," let A (or 1) = strongly disagree, B (or 2) = mildly disagree, C (or 3) = neither disagree nor agree (i.e., neutral or no opinion), D (or 4) = mildly agree, and E (or 5) = strongly agree. Please fill in the appropriate circle for each item. See the following example.

EX. It is harmful to stare into the sun.

You will most probably strongly agree with this statement so you should fill in the number "5". It is located under the letter "E" on your answer sheet.

In the second section, use the response options which are specified at the conclusion of each statement or question. Please continue to use the General Purpose NCS Answer Sheet to record your reponses.

WORK CAREFULLY AND BE SURE THAT THE NUMBER OF THE QUESTION IN THE QUESTIONNAIRE AND THE NUMBER ON THE ANSWER SHEET ARE THE SAME. IF YOU SKIP A QUESTION IT IS EASY TO GET OUT OF SEQUENCE.

For items 1-82, please note whether your disagree or agree with each statement. Using the enclosed "General Purpose NCS Answer Sheet," let A (or 1) = strongly disagree, B (or 2) = mildly disagree, C (or 3) = neither disagree nor agree (i.e., neutral or no opinion), D (or 4) = mildly agree, and E (or 5) = strongly agree. Please fill in the appropriate circle for each item.

Category		Mean
TR	1. The tasks I faced as a TI-IN facilitator were easier because of the training I received.	3.6
TR	2. The facilitator training was an adequate preparation for using the technical equipment for the course.	3.6
T	3. The TI-IN teacher and I were each aware of our roles and worked well together to teach the course.	4.2
PI	4. I remained in the classroom during each class period.	4.6
PI	5. The feedback I got seemed to indicate that the students needed me in order to succeed.	3.8
	6. Without this course, this type of educational experience would be out of reach of many students.	
JS	7. I am more confident now than I was when the course first began.	4.0
	8. I feel I had an adequate amount of preparation and training to be a competent facilitator.	
T	9. I felt at ease in my interactions with the teacher.	4.5
	10. When this course began, I was very optimistic about the positive effects it would have on our students.	
JS	11. Serving as a course facilitator improved my relationship with the students here.	3.9
	12. I feel much closer to teachers in regular classrooms after being the course facilitator.	
T	13. The TI-IN teacher and I developed real cohesion while working together.	3.7
JS	14. I am happy about working as a facilitator because I think I made a real difference to the students.	3.8
	15. The electronic technology utilized functioned according to my expectation.	
JS	16. It was fun being a part of the classroom interaction.	4.2

Note: Job Satisfaction = JS
Teamwork = T
Equipment = E
Training = TR
Perceived Importance = PI
Student = S
Technical Problems = TP

Category		Mean
T	17. I found the course interesting.	4.4
	18. I spent time outside of class studying the subject matter of the course.	
PI	19. I feel that I succeeded in being as supportive of the students as they needed me to be.	4.1
JS	20. I wish that I would have had an opportunity to take courses like this when I was in school.	3.8
	21. I learned all sorts of new things as I facilitated this course.	
	22. I spent more time on paperwork than I had originally anticipated.	
	23. The activities I planned helped the students feel like a real class.	
	24. The room we used for the TI-IN class was very comfortable.	
	25. We had enough lab equipment to do any lab work the course required.	
S	26. I feel that most students achieved their potential in this course.	3.2
T	27. I liked being able to directly interact with the teacher.	4.1
TR	28. I used the talkback telephone handset.	4.0
TR	29. I was comfortable using the talkback telephone system.	3.9
PI	30. I feel that I provided a necessary link between the students and the TI-IN teacher.	4.1
	31. My duties as a facilitator were similar to my normal duties.	
T	32. The TI-IN teacher and I worked together as a cooperative team to better facilitate student learning.	4.1
T	33. The TI-IN teacher would always alert me as to any special needs for a given class.	4.1
	34. The administration of this school was positive about and provided support for the TI-IN program.	
E	35. The technicians from TI-IN responded rapidly and competently to equipment malfunctions.	4.2

Category		Mean
JS	36. My favorite part of being course facilitator was being able to work so closely with the students.	4.0
	37. I like the students at our school.	
	38. I enjoy working directly with students more than being involved in administrative tasks.	
	39. I was quite familiar with the students' academic backgrounds.	
	40. The classroom teachers in my school were generally supportive of the TI-IN program.	
	41. Other teachers and/or school administrators used the TI-IN equipment for taping courses or in-service training on a regular basis.	
	42. I think students should have access to TI-IN courses at any cost.	
	43. I was determined to my students do well.	
JS	44. The work I'm doing with students as a facilitator with TI-IN was a source of deep satisfaction.	3.7
	45. Access to the TI-IN equipment was sometimes a problem.	
	46. The compensation I received for my work as facilitator was fair.	
E	47. I was aware of how to contact the TI-IN technicians if I had a problem with the equipment.	4.5
	48. The time required to serve as a TI-IN facilitator was about what I expected.	
	49. TI-IN support personel were good about supplying videotapes for lectures missed for any reason.	
	50. If a student missed a class I always videotaped the missed lecture so that he or she could make it up later.	
	51. The calendar for the TI-IN courses worked well with our school's calendar.	
JS	52. Having served as a facilitator, I am now better able to understand the problems our students have.	3.6
E	53. When I call the Technical Assistance telephone number I am able to easily report technical problems.	4.1
	54. When I call the TI-IN teacher I am able to get through quickly.	

Category		Mean
	55. It takes a high degree of maturity and self-motivation on the part of the student in order for TI-IN classes to be a success.	
	56. I received handout materials on time for classroom instruction.	
	57. The TI-IN teacher was prompt in grading and reporting results of examiniations.	
T	58. I worked closely with the TI-IN teacher in order to make this course a valuable learning experience for the students.	4.0
	59. Because the TI-IN teacher was not physically present, the lack of discipline in the classroom interfered with class progress.	
	60. The teaching of the course was handled in an excellent manner.	
	61. I feel that students in the TI-IN classes learn more than those in normal class environments.	
	62. Both the audio and video portions of the TI-IN class were for the most part clear and free from interference.	
TP	63. The TI-IN equipment would frequently malfunction.	2.3
TP	64. There were frequent disruptions in learning due to technical problems.	2.2
	65. There were technical problems with the equipment from time to time.	
	66. I feel that I have learned as much or more than the students.	
	67. The TI-IN program provides sufficient opportunities for student/teacher interaction.	
S	68. The students in the TI-IN courses I facilitated were eager to learn.	3.6
S	69. The students in the TI-IN courses I facilitated were always attentive to the TI-IN teacher.	3.2
	70. I always felt prepared to answer any questions the students might have about the subject matter in the course.	
	71. My lack of knowledge of the subject matter being taught hindered my ability to help students.	
	72. The students seldom complained when they had to do make up work stemming from equipment malfunctions.	

Category			Mean
	73.	The students were very interested in the technology used in the TI-IN classes.	
	74.	The students were not afraid to use the handset and did so often.	
	75.	The students were not afraid to call the teacher on a land-line during the teacher's office hours.	
	76.	I felt a sense of comraderie between students at my school and students at other sites enrolled in the same course.	
JS	77.	I would want to facilitate the same course again.	3.7
	78.	I would want to facilitate a different course in the future.	
E	79.	I always felt well prepared to operate the equipment.	4.3
E	80.	I felt that I could get the equipment to work again if it failed to operate properly.	3.9
	81.	I was motivated to take this job because I was interested in the use of satellite technology as a teaching tool.	
	82.	I was motivated to take this job because I was interested in the subject matter being taught.	

The remaining items, #83- 94, use response options which are specified at the conclusion of each statement or question. Please continue to use the General Purpose NCS Answer Sheet to record your responses, beginning with #83.

83. I participated in all phases of the facilitator training provided.
    (1) yes (2) no

84. I am a certified teacher. (1) yes (2) no

85. I am a community volunteer. (1) yes (2) no

86. I am a school employee but not a teacher or principal.
    (1) yes (2) no

87. How many other courses do you teach besides the ones in which you act as facilitator?
    (1) One (2) Two (3) Three or more

88. Do you frequently use a computer at work? (1) yes (2) no

89. Do you own a computer? (1) yes (2) no

90. How many?
(1) one (2) two (3) three (4) four (5) five or more

91. Do you own a VCR? (1) yes (2) no

92. How many?
(1) one (2) two (3) three (4) four (5) five or more

93. Do you own a Television set? (1) yes (2) no

94. How many?

(1) one (2) two (3) three (4) four (5) five or more

APPENDIX E

APPENDIX E

TI-IN TEACHER QUESTIONNAIRE

DIRECTIONS

Your responses on this questionnaire will be made on a computer coded answer sheet. Be sure to use only a black lead #2 pencil. The first task is to enter your name on the sheet at the top left hand corner and the corresponding "bubble" below each letter in your name. Then write your school name in the top left hand margin of the answer sheet. Under the boxes marked IDENTIFICATION NUMBER on the answer sheet you should enter your social security number. Under the boxes marked SPECIAL CODES on the answer sheet fill in your school's zip code. Don't forget to completely fill in the corresponding "bubbles" underneath these numbers. Also please fill in the sex and your level of education sections on side one of the answer sheet. Use 12 for High School, 13 for College degree, 14 for Master's degree, 15 for a Doctorate.

If you will notice the right half of side one, you will see that the scoring begins with question 1 and goes on to question 100 at the bottom of the page. The computer scoring sheet gives an example of the correct marking procedures on side two.

For the first set of questions, please note whether you disagree or agree with the statement. Using the enclosed "General Purpose NCS Answer Sheet," let A (or 1) = strongly disagree, B (or 2) = mildly disagree, C (or 3) = neither disagree nor agree (i.e., neutral or no opinion), D (or 4) = mildly agree, and E (or 5) = strongly agree. Please fill in the appropriate circle for each item. See the following example.

EX. It is harmful to stare into the sun.

You will most probably strongly agree with this statement so you should fill in the number "5". It is located under the letter "E" on your answer sheet.

In the second section, use the response options which are specified at the conclusion of each statement or question. Please continue to use the General Purpose NCS Answer Sheet to record your reponses.

WORK CAREFULLY AND BE SURE THAT THE NUMBER OF THE QUESTION IN THE QUESTIONNAIRE AND THE NUMBER ON THE ANSWER SHEET ARE THE SAME. IF YOU SKIP A QUESTION IT IS EASY TO GET OUT OF SEQUENCE.

TI-IN TEACHER QUESTIONNAIRE

For items 1-44, please note whether you disagree or agree with each statement. Using the enclosed "General Purpose NCS Answer Sheet," let A (or 1) = *strongly disagree*, B (or 2) = *mildly disagree*, c (or 3) = *neither disagree nor agree* (i.e., neutral or no opinion), D (or 4) = *mildly agree*, and E (or 5) = *strongly agree*. Please fill in the appropriate circle for each item.

Category		Item	Mean
P	1.	The physical capabilities of the studio from which I have taught have supported conducting a good class.	4.3
P	2.	The production staff assigned to me has provided top-rate technical support for the class.	4.4
EP	3.	Equipment problems have been minimal.	3.2
P	4.	The production crew has been willing to assist me by producing graphics, video inserts, and other learning aids.	4.3
P	5.	The production crew has been capable of preparing material which met the need for supplementary information.	4.1
P	6.	The production budgets have been adequate to handle requests for production of instructional materials.	3.2
PE	7.	I have frequently taken advantage of television's visual potential as a means of demonstration.	4.2
A	8.	The school administrators I have dealt with have been very supportive of the TI-IN United Star Network's courses.	4.5
F	9.	The role of the facilitator has proven to be critical in teaching the TI-IN course effectively.	4.5
F	10.	The facilitators I have worked with have been competent.	3.6
F	11.	The facilitators I have worked with have been dedicated.	3.5
F	12.	The facilitators I have worked with have been organized.	3.5
F	13.	The facilitators I have worked with have devised supplementary activities which reinforced learning the material.	2.8

Note: Production = P
Facilitators = F
Administration = A
Students = S
Instruction = I
Equipment Problems = EP
Program Effectiveness = PE

Category			Mean
F	14.	The facilitators I have worked with have been capable of aiding students with their assignments in this course.	2.8
F	15.	I have counted on the facilitators to help students with gaining access to and using auxiliary services such as the library and computers.	3.0
F	16.	The facilitators have been successful in obtaining the necessary lab supplies for lab sessions.	3.0
A	17.	The administration I have worked with have been very good at integrating the TI-IN course into the local curriculum.	4.2
F	18.	The facilitators have been effective in bridging any cultural differences between students and myself.	3.4
I	19.	This is the first TI-IN course I have taught (1=no or 2=yes).	1.6
PE	20.	I have missed having students physically present in my classroom as I teach.	3.3
PE	21.	The TI-IN format has slowed down the presentation of class material.	2.1
PE	22.	The TI-IN format has enabled the maintenance of an ideal pace in present class materials.	3.3
PE	23.	The interactive capacity of the telephone handset system has proved to be quite effective.	3.9
PE	24.	The telephone hand-set system limits the ability of a student who needs help to talk with me.	2.5
S	25.	Students seem to have taken advantage of all the help available to them.	2.7
S	26.	Students have called frequently during my announced office hours.	3.4
S	27.	I have spent more time talking to students during course telecasts than during my office hours.	2.9
S	28.	Students have been reluctant to call in during the telecast.	2.5
S	29.	TI-IN students have been more highly motivated than students I have taught in comparable classroom course.	3.5
S	30.	Most of the students have seemed capable of handling the course work.	4.4

Category			Mean
S	31.	Students have learned in this TI-IN course as they would have in a traditional classroom setting.	4.2
A	32.	Paperwork for registration was processed smoothly.	2.8
A	33.	General paperwork has been handled smoothly with materials being processed in a timely fashion.	3.5
A	34.	Examinations have been efficiently returned from the class to me.	3.3
A	35.	Corrected examinations have been efficiently returned to the class.	3.9
A	36.	Student papers and assignments have been graded and returned to students in less than one week.	3.2
A	37.	Mailing assignments through the U.S. Postal Service or Federal Express has worked well.	3.5
A	38.	I have frequently used the printers which are in the A-V carts to electronically mail assignments to the classes.	1.9
PE	39.	I feel like I have gotten to know students personally through the telephone hand-set system.	4.2
I	40.	I have used a standard course curriculum as an aid to my class presentation.	3.9
I	41.	I have spent more time preparing this course than I would have in preparing for a regular classroom course.	4.2
I	42.	I have utilized the same types of examinations that I would have used in a regular classroom course.	4.1
I	43.	I have assigned the same type of reading material that I would have in a regular classroom course.	3.9
I	44.	I have been able to cover what I consider to be "a semester's work" in one semester as planned.	4.4

APPENDIX F

APPENDIX F

SCHOOL ADMINISTRATOR QUESTIONNAIRE

For items 1-16, please note whether you disagree or agree with each statement. Using the enclosed "General Purpose NCS Answer Sheet," let A (or 1) = *strongly disagree*, B (or 2) = *mildly disagree*, C (or 3) = *neither disagree nor agree* (i.e., neutral or no opinion), D (or 4) = *mildly agree*, and E (or 5) = *strongly agree*. Please fill in the appropriate circle for each item.

Category	Item	Mean
T	1. The TI-IN United Star Network equipment (satellite dish, A-V equipment, etc.) was installed at my school promptly and efficiently.	4.3
T	2. We have had numerous technical problems with the TI-IN equipment.	2.4
T	3. Any technical problems that we had were corrected promptly and courteously by project technicians.	4.2
C	4. The TI-IN United Star Network courses that we have utilized have complemented our existing curriculum and faculty resources.	4.1
C	5. We would not have been able to offer classes in the subject matter covered by the TI-IN United Star Network courses if these televised courses had not been available.	4.0
PI	6. I personally have viewed a large enough number of TI-IN telecasts to have an informed opinion about the quality of the courses we have received.	3.8
PI	7. Our TI-IN facilitators or students have shared with me their opinions regarding the quality of the TI-IN United Star Network courses we have utilized.	4.2
F	8. The system whereby facilitators supervised and assisted in the day-to-day operation of the TI-IN United Star Network courses worked very well.	4.1
F	9. The facilitators who worked with our TI-IN United Star Network courses were extremely competent and dedicated.	4.4
F	10. All facilitators should be certified teachers.	2.7
A	11. My administrative responsibilities associated with the TI-IN United Star Network courses frequently interfered with my other school duties.	2.4
A	12. In order to promote our school's involvement with the TI-IN United Star Network, I gave talks about the program to civic organization or the like or I gave interviews about such to the news media.	3.2

Note: Technical = T
Courses = C
Facilitators = F
Administration = A
Personal Involvement = PI
Teacher = TE
Satisfaction = S

Category		Mean
A	13. My role in supervising the TI-IN United Star Network courses was very important in accomplishing the program's missions at our school.	3.6
F	14. Our facilitators' role in the TI-IN United Star Network courses was very important in accomplishing the program's missions at our school.	4.4
C	15. Students who take a TI-IN United Star Network course can learn just as much as students in a traditional class.	3.8
S	16. I hope to be able to continue using distance learning courses in the future.	4.3

The remaining items, #17-24, use response options which are specified at the conclusion of each statement or question. Please continue to use the General Purpose NCS Answer Sheet to record your responses, beginning with # 17.

Category		Mean
T	17. All in all, I would say that we had equipment or other technical problems: (a) never, (b) once or twice per term, (c) three-five times per term, (d) five-ten times per term, (e) more than ten times per term.	3.6
PI	18. I personally visited a TI-IN United Star Network classroom: (a) never, (b) once per term, (c) two-three times per term, (d) four-five times per term, (e) more than five times per term.	4.0
TE	19. The instructional quality of the TI-IN United Star Network courses we utilized was: (a) very poor, (b) poor, (c) adequate, (d) good, (e) excellent.	4.2
TE	20. How did the teachers who taught the TI-IN United Star Network courses compare with the typical classroom teacher at your school? (a) TI-IN teachers were much weaker, (b) TI-IN teachers were somewhat weaker, (c) TI-IN teachers were about the same, (d) TI-IN teachers were somewhat stronger, (e) TI-IN teachers were a lot stronger.	3.3
T	21. The production quality of the TI-IN United Star Network courses we utilized was: (a) very poor, (b) poor, (c) adequate, (d) good, (e) excellent.	4.1
	22. Our students' interest and involvement in the TI-IN United Star Network courses in which they were enrolled was: (a) very low, (b) low, (c) average for courses taught at our school, (d) high, (e) extremely high.	3.6
A	23. I spent on the average approximately _____ hours per week with administrative or supervisory duties associated	1.8

Category		Mean
	with our TI-IN United Star Network courses: (a) less than one, (b) one, (c) two, (d) three, (e) more than three.	
S	24. Overall, how pleased were you with the TI-IN United Star Network courses offered at your school? (a) extremely displeased, (b) mildly displeased, (c) neither pleased nor displeased, (d) mildly pleased, (e) extremely pleased.	4.3

Obviously your responses to these closed-ended questions cannot tell us all that you know or everything that we need to know about your experiences with the TI-IN United Star Network programs. If critical areas were not covered in the questionnaire, or if you would be willing to shed more light on the success or failures you experienced in using the TI-IN United Star Network courses at your school, after you complete and mail your responses to this questionnaire, please call Dr. Jennings Bryant, Senior Project Evaluator, at (205) 348-6350, or drop me a note with your comments: Jennings Bryant, Director, Institute for Communication Research, College of Communication, Box 870172, University of Alabama, Tuscaloosa, AL 35487-0172. Thank you.

APPENDIX G

APPENDIX G

Partners in Professional Growth Evaluation

1. How long have you been teaching? (a) 1 year, (b) 2 years, (c) 3-5 years, (d) 6-10 years, (e) more than 10 years.

2. At what level do you teach? (a) kindergarten, (b) elementary school, (c) junior high or middle school, (d) high school, (e) other.

3. What subject matter do you teach primarily? (a) all, (b) English, (c) Math or Science, (d) Foreign Language, (e) other.

4. How long have you lived in your present community? (a) less than 1 year, (b) 1-5 years, (c) 6-10 years, (d). 10-15 years, (e) more than 15 years.

Category	Items # 5-46 have common response options, which are "poor, fair, good, or excellent." For each item, completely fill in the circle for A (or 1) if your response choice is *poor*, B (or 2) if your response choice is *fair*, C (or 3) if your response choice is *good*, or D (or 4) if your response choice is *excellent*.	Mean
AD	5. How would you describe the level of support you received from your principal/superintendent for your involvement in the *Partners in Professional Growth* (hereafter *Partners*) program?	3.6
AD	6. How well informed were your about the goals of the *Partners* program <u>prior to</u> taking the course?	3.0
T	7. How would describe the clarity of the television reception at your site during a typical class session?	3.4
T	8. How would you describe the clarity of the telephone transmission during a typical class session?	3.0
SM	9. How would you describe the effectiveness of the workbooks used the *Partners* program?	3.5
T	10. How would you rate the production quality of the *Partners* programs you have seen?	3.1
ENV	11. How would you rate the physical comfort of the room in which you viewed the *Partners* programs?	2.7
AT	12. How would you describe your attitude toward the *Partners* program <u>prior to</u> the first session?	3.2
AT	13. How would you describe your attitude toward the *Partners* program now that you have completed all the sessions?	3.5

Note: Administrative = AD
Technical = T
Attitude = AT
Support Materials = SM
Satisfaction = S
Communicative = C
Information = I
Course Effectiveness = E
Environment = ENV

Category		Mean
AT	14. What would you rate the likelihood of your voluntarily participating in another *Partners* program next year if such were offered?	3.1
AD	15. Overall, what kind of job ha Project Director Dr. Victoria Bernhardt done in administering and supervising the *Partners* program?	3.5
C	16. How would you describe Dr. Bernhardt's ability to communicate with the class?	3.5
AD	17. How would you rate Dr. Bernhardt's ability to remain focused on the content she presented to the class?	3.5
AD	18. Overall, how would you rate your Instructor/Trainer Geraldine Flaherty's Performance in presenting the *Partners* program?	3.7
I	19. How would you describe the usefulness of the information Ms. Flaherty presented during her lessons?	3.6
C	20. How would you rate Ms. Flaherty's ability to communicate with the class?	3.6
I	21. How would you rate the quality of Ms. Flaherty's preparations for each class session.	3.7
AD	22. How would you rate Ms. Flaherty's performance in evaluating and returning class assignments in a timely manner?	2.3
I	23. How clearly were the procedures for using the A-V equipment and the telephone presented to you in the early classes?	3.0
	Items #24-30 are for PEER COACHES only. All others should skip to item # 31 and leave items #24-30 blank on your NCS answer sheet.	
E	24. How would you evaluate the level of professional growth you have received from serving as a peer coach in the *Partners* program?	3.3
E	25. How would you describe your relationship with your beginning teacher(s) <u>prior to</u> the *Partners* program?	3.2
E	26. How would you describe your relationship with your beginning teacher(s) after completing the *Partners* program?	4.0
E	27. How would you rate the program's effectiveness for your beginning teacher(s)?	3.5

Category			Mean
S	28.	How would you rate the level of personal satisfaction you received from serving as a peer coach?	3.5
S	29.	How would you rate yourself as a peer coach?	3.4
S	30.	What are the chances that you would serve as a peer coach again if given an opportunity to do so?	3.8

Peer Coaches, please skip to item # 43 on the questionnaire, leaving items # 31-42 blank on your NCS answer sheet.

Items # 31-42 are for BEGINNING TEACHERS only.

E	31	How well has the *Partners* program addressed your particular needs as a new teacher?	3.1
E	32.	How would you rate your ability to utilize the information presented in the program in your teaching?	3.3
E	33.	How would you rate the performance of your peer coach through the program?	3.6
E	34.	How would you describe your personal relationship with your peer coach <u>prior to</u> the *Partners* program?	3.5
E	35.	How would you describe your personal relationship with your peer coach at the end of the *Partners* program?	3.8
E	36.	How would you describe the program's ability to help you adapt to the challenges faced by being a teacher?	3.3
E	37.	How would you rate the *Partners* program in regards to helping you adapt to your present community environment?	3.6
AT	38.	Why would you say the likelihood is that you will remain in the teaching profession for at least five more years?	3.9
AT	39.	How would you rate your self-confidence in teaching <u>before</u> participating in the *Partners* program?	3:1
AT	40.	How would you rate your self-confidence in teaching <u>after</u> participating in the *Partners* program?	3.8
AT	41.	What is the likelihood that you would enroll in another similar type of program that would be designed to support teachers at various stages of their careers?	3.3
E	42.	How would you rate your ability to successfully incorporate the material you have learned into an improved educational experience for your students?	3.4

Category	The remaining items are to be completed by peer coaches and beginning teachers alike. Please make sure that you are on item # 43 of your NCS answer sheet.	Mean
AT	43. What is the likelihood that you would encourage other teachers to participate in a program such as *Partners in Professional Growth*?	3.8
AT	44. How would you rate the experience of using interactive television as a means for this type of instruction?	3.0
AT	45. How would you rate the likelihood that you would seek supplemental information similar to that presented in class on your own?	3.0
AT	46. How would you rate the benefits of the *Partners* program in relationship to the personal sacrifices and commitments you had to make in order to participate?	3.2

CALIFORNIA STATE UNIVERSITY

TI-IN UNITED STAR NETWORK.

PARTNERS in Professional Growth

a program of support and skill-building

1989-90 Evaluation

PARTNERS in Professional Growth
1989-90 Evaluation

Program Description

PARTNERS in Professional Growth is a program of support and skill-building specifically designed to assist beginning teachers in making a smooth transition from effective student to effective teacher. PARTNERS was offered during the 1989-90 school year through the TI-IN United Star Network funded through Star Schools.

The goals of PARTNERS were to improve the skills and knowledge base of beginning teachers by providing a support and information system that would:

- improve instructional abilities,
- provide opportunities for professional growth,
- enhance self-assessment capabilities,
- enhance working conditions and job satisfaction by reducing professional and geographic isolation,
- enhance educational opportunities for traditionally underserved populations,
- model professionalism,
- increase teacher retention rates,
- retain the best teachers,
- provide the best educational experience for school children,
- and provide a career ladder for experienced teachers who are trained to coach and support new teachers.

A central assumption of PARTNERS is that beginning teachers have the skills they need to succeed in the classroom, and that when these skills are nurtured by a professional growth program, beginning teachers can achieve excellence early in their careers.

Through the Program, beginning (1st through 5th year) teachers are paired with experienced teachers who are trained to be peer coaches. These participants form teaching teams for the purpose of viewing instructional seminars together, creating action-research plans to implement seminar concepts in their classrooms, observing/conferencing together to assess the success of the implementation, and planning further action. In this way, PARTNERS offers information and support to teachers when and where they need it the most--in their own classrooms.

Instructional seminars, which the teams viewed together, were offered via satellite. Objectives of using the satellite mode of delivery were to:

* effectively deliver a comprehensive professional development program to a large number of teachers and schools,
* effectively deliver a comprehensive professional development program that impacted three audiences at the same time--in this case beginning teachers, experienced teachers and student in these teachers' classrooms,
* effectively utilize satellite for comprehensive professional development programs that would not otherwise be available to teachers in remote areas.

PARTNERS Participants

49 teachers were enrolled in PARTNERS in 1989-90. These teachers had from 1-26 years of experience. The table below describes participants enrolled at each site.

Location	Total	Beginning Teachers	Peer Coaches
Lake County, California	12	6	6
Flagler-Arriba and Deer Trail, Colorado	9	5	4
Hanau and Babenhausen, West Germany	14	0	14
Mt. Ayr, Iowa	8	2	6
Syracuse, Kansas	4	2	2
Kwajelein, Marshall Islands	2	1	1
TOTAL	49	16	33

16 (33%) participants were 1st through 5th year teachers, and 33 (67%) were experienced teachers who chose to serve as peer coaches--27 of them as partners of other experienced teachers. Teaching teams were comprised of staff members from the same schools and many pairs taught the same grade level or content area. 10 PARTNERS teachers were involved in team teaching or other patterns of shared responsibility in their classrooms. The teachers in West Germany were all staff members at schools operated by the U.S. Department of Defense to serve dependents of military personnel stationed in Hanau and Babenhausen. Those in the Marshall Islands were staff members at private schools that primarily served dependents of U.S. citizens, both military and civilian, and some native island children.

Method of Evaluation

A final evaluation questionnaire was sent to all participants asking them to rate the effectiveness of the Program and to report the impact that PARTNERS had on them by

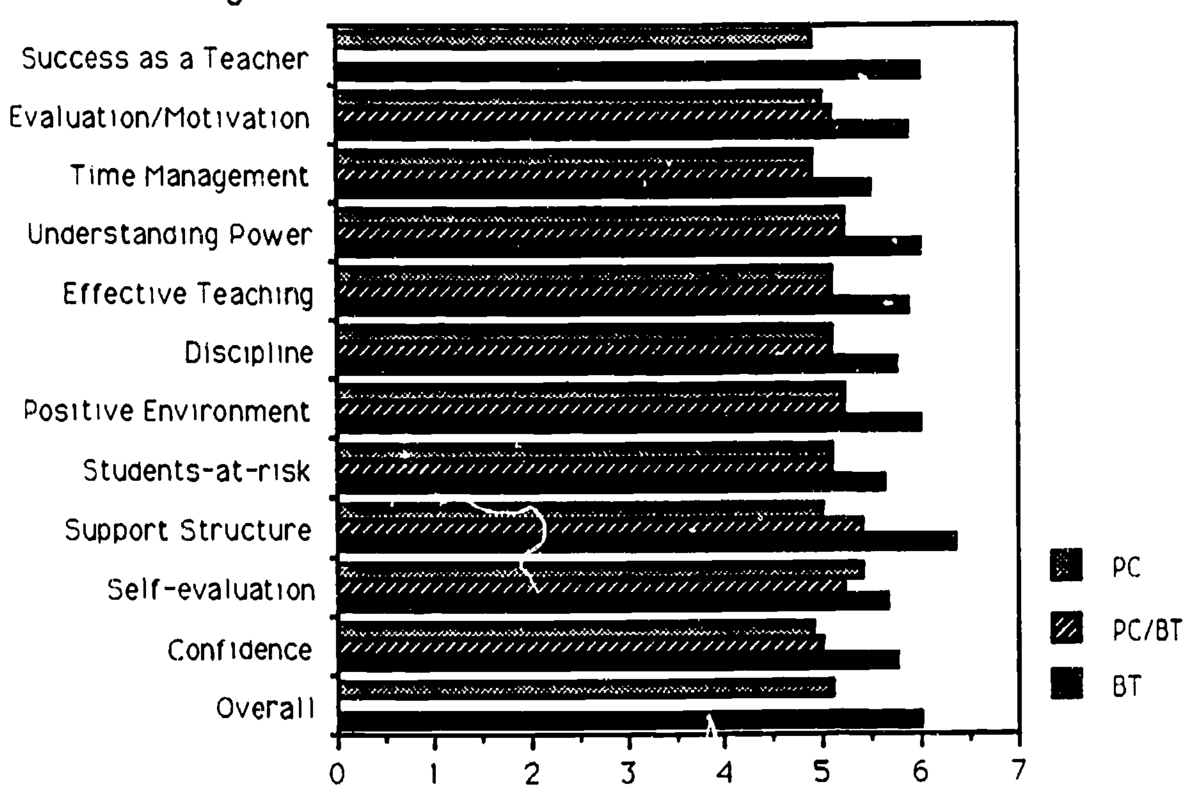
rating their attitudes before and after participation. Measurements were recorded on a zero to seven point scale (0=not effective, 7=extremely effective). Brief narrative comments were requested to flesh out the ratings that participants reported. A 78% response rate to this questionnaire was realized.

Figures reported in this document represent the mean response recorded unless otherwise specified. Narratives were examined to identify any trends or common ideas among the responses offered, and are reported in support of the numerical data presented.

Effectiveness of the PARTNERS Program

Overall, PARTNERS was rated as a highly effective program by both beginning teachers (6.0) and their peer coaches (5.1) and they stated that they would recommend the program very highly to colleagues (5.85). Figure 1 below depicts the responses offered by PARTNERS participants on the effectiveness of the Program.

Figure 1. Effectiveness of PARTNERS



Beginning teachers placed the highest value (6.33) on the support structure that PARTNERS offered. They rated the program as being effective in contributing to their success as teachers (6.0), supporting this ranking were the highly effective scores they gave to understanding their power as teachers (6.0), establishing a positive classroom environment (6.0), enhancing their to motivate and evaluate students (5.87), improving

their teaching skills (5.87), and formulating discipline plans (5.75). As a result of perfecting these teaching skills they noted their increased confidence (5.75).

Peer coaches, when evaluating the effectiveness of PARTNERS for their beginning teachers, largely concurred in their judgements. Again, they cited the support structure provided by the Program as the single most effective component (5.4) for beginning teachers. They also noted their beginning teachers' development of classroom skills--establishment of self-evaluation abilities (5.2), establishment of a positive classroom environment (5.2), and enhanced understanding of their power as teachers (5.2). As a result of this growth, peer coaches reported that their beginning teachers became more effective teachers (5.1) who were better able to deal with classroom discipline (5.1), evaluating and motivating students (5.1), and teaching students at risk (5.1).

Expanding on the idea that the single most effective PARTNERS component for beginning teachers was the availability of a support system, participants rated the helpfulness of various types of assistance rendered by peer coaches. This rating was conducted by asking participants to assign numerical values (1=least helpful 5=most helpful) to categories of assistance provided. The following table summarizes their responses.

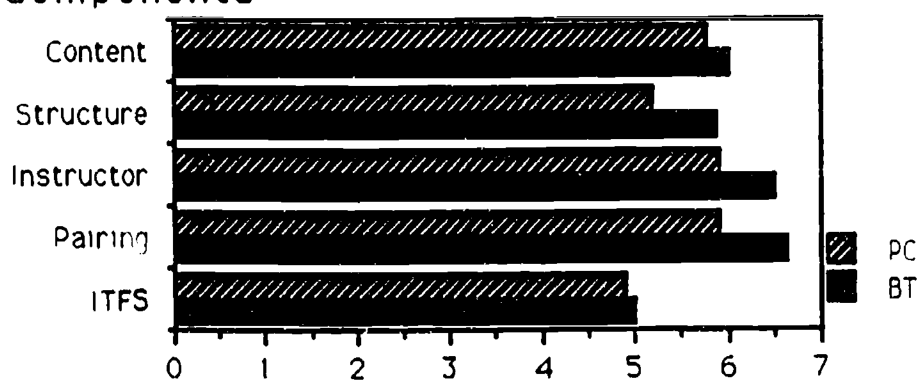
	Beginning Teachers	Peer Coaches
Giving Support	5.0	4.5
Giving Guidance	4.83	4.1
As a Role Model	4.83	3.5
Assistance with Subject Matter	4.2	2.9
Assistance with Seminar Concepts	4.8	3.6
Friendship	5.0	4.5
Giving Feedback	5.0	4.0

While beginning teachers were somewhat more generous in their ratings than their peer coaches, both are in general agreement about ranking the most important types of assistance offered. Support, guidance, and friendship emerged as the most highly valued by both groups. Assistance with subject matter in the classroom was the least valued by both groups. Beginning Teachers, however, assigned significantly greater importance to the role modelling, constructive feedback, and direct assistance with seminar concepts provided by their peer coaches as factors in their success as new teachers. These data are consistent with the induction theme of PARTNERS. Clearly, new teachers want to be shown, not told, about sound teaching practice in an environment that respects their status as adults and emerging professionals.

When asked to rate the effectiveness of PARTNERS for themselves, peer coaches indicated they were able to sharpen a number of important skills. They reported that the enhancement of self-evaluation abilities (5.4) and teaching students at risk (5.4) were the most effective components for experienced teachers. They also gained skills in establishing a positive classroom environment (5.2), and understanding their power as teachers (5.2). These in turn contributed to formulation of more effective discipline procedures (5.1), cultivation of effective teaching skills (5.1), and increased overall effectiveness (5.1) among veteran teachers.

Figure 2 depicts the effectiveness of the delivery method, content, and structure of PARTNERS as perceived by Program participants.

Figure 2. Effectiveness of PARTNERS Components

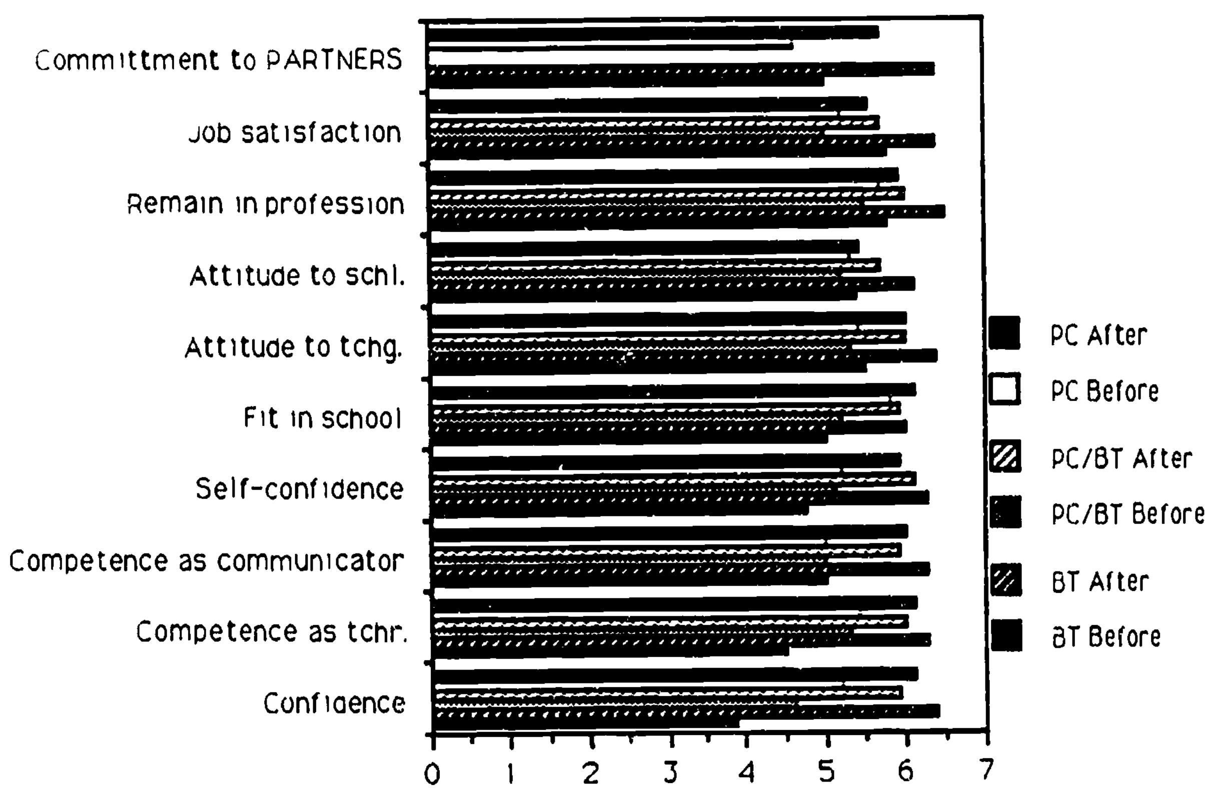


Beginning teachers and their peer coaches are clearly in close agreement about what made their PARTNERS experience productive. They are uniformly enthusiastic about about their pairings; the instructor, Geraldine Flaherty; and about the content of the Program. Beginning teachers believed the structure of the Program was somewhat more effective for them (5.87) than did peer coaches (5.2). Both are agreed that delivery of PARTNERS over satellite was their least favored component (5.0 and 4.9 from beginning teachers and peer coaches respectively), rating it average in effectiveness. Yet they agreed that they would have been unable to participate in the Program without satellite delivery.

Impact of the PARTNERS Program

PARTNERS teachers specified a number of areas in which they experienced both personal and professional growth as a result of participating in the Program. Clearly, a number of different influences sparked the growth that PARTNERS teachers reported. Most profound among these influences would certainly be the school setting and the relationships enjoyed with administrators, colleagues, and the students themselves. However, because PARTNERS is designed to offer assistance to participants in their own classrooms, the effects of these many factors can not easily be separated from the Program effects. Figure 3 following illustrates the areas in which participants reported growth, narrative comments included in the next section add detail to this figure.

Figure 3. PARTNERS Impact

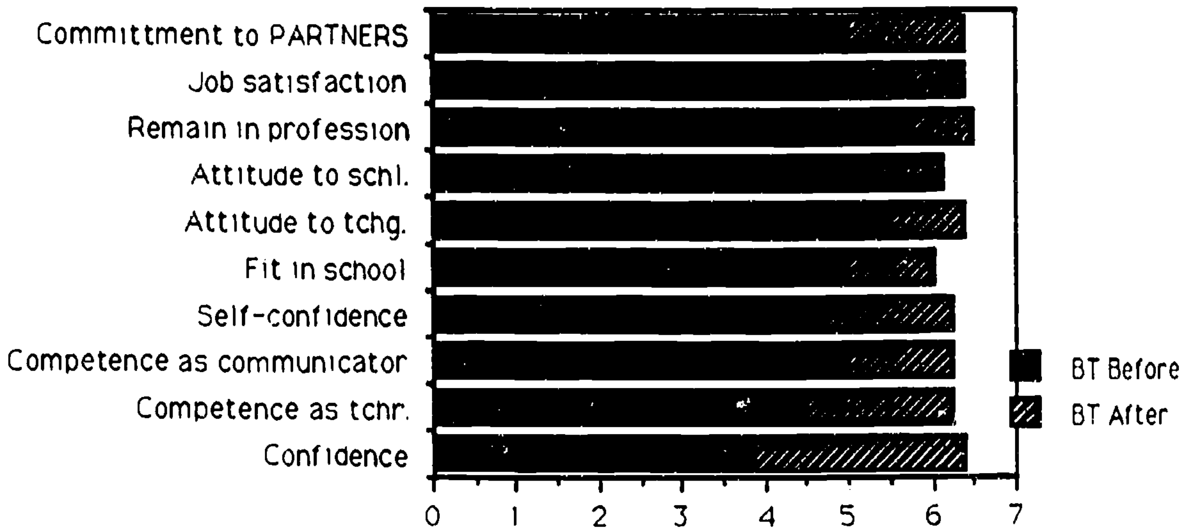


Beginning Teacher Self-Report

On the whole, beginning teachers assessed themselves as moving from "average" to "good" performers in the classroom. Beginning teachers reported that they experienced their greatest growth in confidence (2.5 gain), in competence as teachers (1.75 gain), and in competence as communicators (1.25 gain). As a result of the growth they experienced in their teaching skills beginning teachers reported that they fit into their school settings better (1.0 gain) and that they had more positive attitudes toward teaching (.875 gain).

Thus, they were more satisfied with their jobs (.625 gain) and more likely to remain in the profession (.75 gain). Figure 4 summarizes the self-reports of beginning teachers.

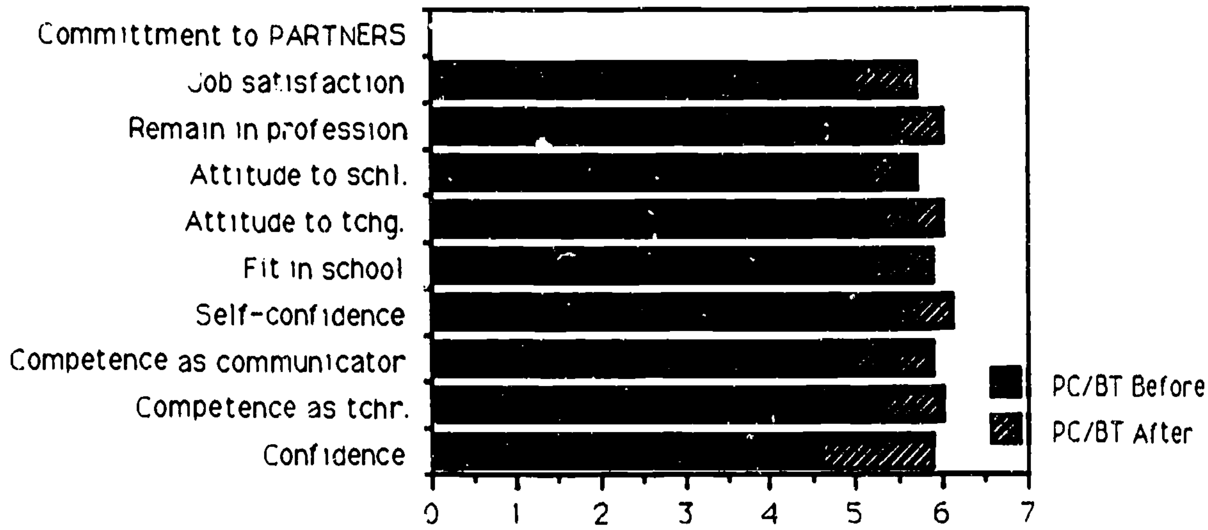
Figure 4. PARTNERS Impact on Beginning Teachers



Peer Coach Perceptions of PARTNERS Impact on Beginning Teachers

Peer Coaches were in remarkably close agreement with their novice partners seeing them as moving from "average" to "good" teachers. While they reported a somewhat smaller magnitude of gain than did the beginning teachers, peer coaches generally saw their partners as being somewhat less needy initially than the beginning teachers reported they felt. They concur in the self-reports of beginning teachers that their greatest growth occurred in the areas of confidence (1.3 gain) and self-confidence (1.0 gain). Again, peer coaches seemed to feel that the increased skills levels achieved by their novice partners accounted this growth. They saw their partners as gaining in competence as communicators (.94 gain), in competence as teachers (.7), and in their attitudes toward teaching and ability to fit into the school environment (.7 gain in each case). As a result peer coaches substantiated that their partners did experience enhanced job satisfaction (.7 gain). They were less able to attribute an increased desire to remain in the profession to Program participation, reporting a gain of .5. However, they had also viewed their beginning teacher partner as more highly motivated to stay in teaching (5.5) initially than the beginning teachers reported they actually felt (5.375). Figure 5 following summarized the perception of peer coaches about the impact of PARTNERS on beginning teachers.

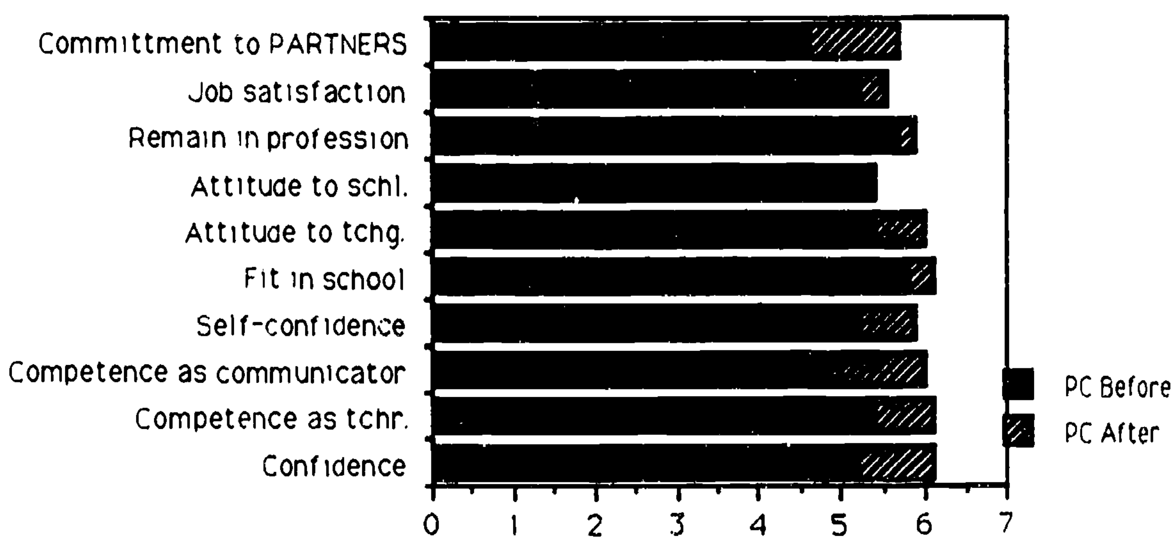
Figure 5. Peer Coach Perceptions on PARTNERS Impact on Beginning Teachers



Peer Coach Self-Report

Peer coaches also reported significant impacts from their participation in PARTNERS, seeing themselves as moving from "good" to "excellent" performers in the classroom. Figure 6 below depicts these gains.

Figure 6. PARTNERS Impact on Peer Coaches



Perhaps not surprisingly, peer coaches reported the greatest growth in their competence as communicators (1.1 gain). Additionally, they also reported that they felt more confident (.9 gain) as a result of their year-long peer coaching experience. They reported enhanced professional skill and rejuvenation of their commitment to teaching by reporting gains in competence as teachers (.7), self-confidence (.7), and attitudes toward teaching (.6). Finally, they reported the least gain in their attitudes toward teaching in the schools where

they are presently employed (.1) and their desire to remain in the profession (.2), although these attitudes were relatively high both before and after the Program.

Comments from PARTNERS Participants

Narrative comments were solicited from PARTNERS participants to flesh out their numerical responses. Below is a sampling of the comments offered. A full text is included in Appendix A.

What professional benefits did you receive from participating in PARTNERS?

- "It helps to watch others in the classroom. I am a better observer of my own classroom skills for having been a coach."
- "My classroom environment became more positive. My effectiveness improved in the area of discipline and teaching techniques. Observing and evaluating skills have improved."
- "New techniques, verbalizing and labeling what is going on in the classroom."
- "I had a chance to sit back and really look at what I do as a teacher."
- "Reassurance of things that I was doing correctly, but also some new views on how to improve in my own classroom."
- "Recognition as a trained professional with knowledge to share with someone other than my students."

What personal benefits did you receive from participating in PARTNERS?

- "I enjoyed all the companionship of working with my other three colleagues. Their insights and humor made our Saturday sessions quick and pleasant, as well as profitable professionally."
- "I've developed a better understanding of why I do certain things in the classroom and have become more aware of different ways of dealing with a variety of problems."
- "Ability to have my needs met in the classroom"
- "I feel more confident as a teacher."
- "Perhaps not too man of the ideas were new but the concepts need to be re-taught sometimes so we don't forget to apply what we already know!"

What were the strengths of PARTNERS 1989-90?

- "I started out a little shaky at the beginning but once I understood how to focus on a goal I really got a lot out of the program. The action plan was a great aid."

- "Clean and well defined presentations."
- "In depth discussion of the subject matter."
- "Flexibility of being able to work on problems pertaining to our own needs and not necessarily specifically to the lesson."

Review page 1 of your PARTNERS manual to see what talents you listed in October. How would fill in this page differently now that you have finished PARTNERS?

- "I would add the talent to work successfully with my colleagues."
- "Better motivational skills. More confident about my teaching ability."
- "I am a better communicator."
- "I think I would keep the same list, my liabilities are still there but I think I am better able to deal with them."

Have your perceptions of yourself as a teacher changed this year?

- "I have gained more insight into my teaching style. I have had time in the class for self-reflection and analysis and have had to do assignments which have made me look into areas I wanted to."
- "It was good for me to review the fact that there are strategies in teaching that can differ and still be effective."
- "I am able to better identify my needs for job satisfaction and plan ways to meet these needs while I meet student needs."
- "I believe I am more aware of my students sensitivities and needs. I tend to plan lessons more carefully."

If a new teacher was to come into your school, what would you tell them about teaching?

- ". . . . Teachers don't arrive fully developed, like Athena from Zeus' head. It has to be learned--with a bit of humor, forgiveness, and practice."
- "It is a process of self-evaluation. Keep all levels of communication honest and open, cultivate peers who will provide valid feedback."
- "It is demanding and rewarding and it is more than you can do and feel like you did a thorough job. But it is fun most of the time."

In what ways have you changed as a professional educator?

- "I am more tolerant and tactful with young colleagues."
- "Calmer, not as easily volatile, handle situations with more confidence, organized."
- "I have gained skills that have improved my classroom atmosphere--problem solving in my classroom. I gained professional air so that I enter the classroom setting as the leader."

If you could, how would you change pre-service university training?

- "More time in the classroom, earlier than student teaching."
- "More time in the 'trenches' to balance all the ideal methods."
- "Change it to 75% practicing work."
- "Relate theory research to actual classroom experiences. Provide greater interaction with on the job teachers, both in and out of the classroom."

Conclusions

Clearly PARTNERS was an effective program of support and skill-building both for beginning and experienced teachers. Participants uniformly reported positive growth as a result of their year-long experience with the Program and 94% of these teachers indicated that they would be continuing to teach next academic year. Of those who would be leaving the profession, all were leaving due to changes in life circumstances--marriage, change of residence to accommodate a spouse's career, and the like.

Beginning teachers valued the support and induction into the teaching profession that they received through the Program. They reported that they were able to improve their professional skills and perceive the demands of the profession more realistically with the help of their experienced peer coach teachers.

Peer coaches valued the affirmation and rejuvenation they experienced as a result of their participation in the Program. They reported that they also were able to hone their professional skills and welcomed the opportunity to pass along their expertise to their younger colleagues. In return they were able to share in the enthusiasm and optimism of the beginning teachers that they coached.

Uniformly beginning teachers and peer coaches reported that they valued the opportunity to talk to fellow teachers. Their conversations, while focused on specifically identified needs of beginning teachers, were far ranging. In the course of these conversations, teachers were able to evolve the specialized vocabulary needed to talk about their daily activities and concerns. This enabled further sharing of problems, solutions, and ideas. This was a radical departure for many experienced teachers who were accustomed to operating largely in a professional vacuum. In addition, PARTNERS beginning teachers received an induction into the profession that was most uncommon. Rather than being assigned a classroom and cast adrift to cope as best they could beginning teachers were supported and guided into sound practice by successful, experienced colleagues. The experience was mutually affirming, setting participants on the road to excellence.

Peer Coach
FINAL EVALUATION
PARTNERS in Professional Growth Program

Please rate the effectiveness of the PARTNERS program and its components, by circling the number that you feel best applies to each statement.

How Effective was the Program	Not at All 0	1	2	Ave 3	4	5	Extremely Effective 6	7	
1. overall?	0	1	2	3	4	5	6	7	5.2
2. In building your Partner's confidence in teaching?	0	1	2	3	4	5	6	7	5
3. In building your confidence in teaching?	0	1	2	3	4	5	6	7	5
4. In building your Partner's self-evaluation abilities?	0	1	2	3	4	5	6	7	
5. In building your self-evaluation abilities?	0	1	2	3	4	5	6	7	
6. In providing a support structure for your Partner?	0	1	2	3	4	5	6	7	
7. In providing a support structure for you?	0	1	2	3	4	5	6	7	
8. In meeting the needs of students at risk?	0	1	2	3	4	5	6	7	5.2
9. In assisting your Partner with these needs?	0	1	2	3	4	5	6	7	
10. In helping your Partner create a positive classroom environment?	0	1	2	3	4	5	6	7	5.2
11. In helping you create a positive classroom environment?	0	1	2	3	4	5	6	7	
12. In helping your Partner implement an effective discipline plan?	0	1	2	3	4	5	6	7	
13. In helping you with discipline?	0	1	2	3	4	5	6	7	
14. In providing your Partner with the skills to become an effective teacher?	0	1	2	3	4	5	6	7	
15. In enhancing your skills as an effective teacher?	0	1	2	3	4	5	6	7	
16. In helping your Partner understand his/her power as a teacher?	0	1	2	3	4	5	6	7	
17. In helping you understand your power as a teacher?	0	1	2	3	4	5	6	7	
18. In helping your Partner learn how to manage his/her time?	0	1	2	3	4	5	6	7	5.1

19. In helping you learn how to manage your time? 0 1 2 3 4 5 6 7

20. In helping your Partner understand student evaluation and motivation? 0 1 2 3 4 5 6 7

21. In helping you better understand student evaluation and motivation? 0 1 2 3 4 5 6 7

22. How important has PARTNERS been to your success as a teacher? 0 1 2 3 4 5 6 7

Comments

Rate the effectiveness of the following:

23. use of instructional television as a medium for seminars 0 1 2 3 4 5 6 7

24. your pairing with your partner 0 1 2 3 4 5 6 7

25 the instructor: Geraldine Flaherty 0 1 2 3 4 5 6 7

26. the structure of the program 0 1 2 3 4 5 6 7

27. the content of the program 0 1 2 3 4 5 6 7

comments:

In which of the following ways do you feel you were most helpful to your Partner?
(Rate from 1-5. 1=least helpful, 5=most helpful. You may use the same number more than once.)

28. _____ Giving support   __42__ Giving guidance   _____ As a role model

_____ Assisting with subject matter in the classroom

_____ Assisting in implementing seminar concepts

__4.7__ Providing friendship

_____ Providing feedback after observations

_____ Other ____

Comments:

29. Have you, as Peer Coach, accomplished all that you expected to do for your partner?

30. What professional benefits did you receive from participating in PARTNERS?

31. What personal benefits did you receive from participating in PARTNERS?

32. What were the strengths of PARTNERS 1989-90?

33. What would you add or delete from PARTNERS?

34. With what degree of enthusiasm would you recommend PARTNERS to others?	LO							HI
	0	1	2	3	4	5	6	7

Peer Coach
FINAL EVALUATION
PARTNERS in Professional Growth Program

We would like to know the degree to which you and your Partner experienced changes as a result of PARTNERS. Please rate where you feel you were before PARTNERS and at the end of PARTNERS in relation to the following areas.

	Before Low Med High		*After* Low Med High	
1. Your Partner's confidence as a teacher?	0 1 2 3 4 5 6 7	[illegible]	0 1 2 3 4 5 6 7	6
2. Your confidence as a teacher?	0 1 2 3 4 5 6 7	[illegible]	0 1 2 3 4 5 6 7	6.1
3. Your Partner's competence as a teacher?	0 1 2 3 4 5 6 7	5.3	0 1 2 3 4 5 6 7	6
4. Your competence as a teacher?	0 1 2 3 4 5 6 7	5.3	0 1 2 3 4 5 6 7	[illegible]
5. Your Partner's competence as a communicator?	0 1 2 3 4 5 6 7	[illegible]	0 1 2 3 4 5 6 7	[illegible]
6. Your competence as a communicator?	0 1 2 3 4 5 6 7	[illegible]	0 1 2 3 4 5 6 7	[illegible]
7. Your Partner's self-confidence?	0 1 2 3 4 5 6 7	[illegible]	0 1 2 3 4 5 6 7	[illegible]
8. Your self-confidence?	0 1 2 3 4 5 6 7	[illegible]	0 1 2 3 4 5 6 7	6
9. Your Partner's ability to fit into the school environment?	0 1 2 3 4 5 6 7	5.3	0 1 2 3 4 5 6 7	[illegible]
10. Your ability to fit into the school environment?	0 1 2 3 4 5 6 7	[illegible]	0 1 2 3 4 5 6 7	[illegible]
11. Your Partner's attitude toward teaching?	0 1 2 3 4 5 6 7	[illegible]	0 1 2 3 4 5 6 7	[illegible]
12. Your attitude toward teaching?	0 1 2 3 4 5 6 7	[illegible]	0 1 2 3 4 5 6 7	[illegible]
13. Your Partner's attitude about teaching in his/her school?	0 1 2 3 4 5 6 7	[illegible]	0 1 2 3 4 5 6 7	[illegible]
14. Your attitude about teaching in your school?	0 1 2 3 4 5 6 7	[illegible]	0 1 2 3 4 5 6 7	5.6
15. Your Partner's desire to remain in the profession?	0 1 2 3 4 5 6 7	[illegible]	0 1 2 3 4 5 6 7	[illegible]
16. Your desire to remain in the profession?	0 1 2 3 4 5 6 7	[illegible]	0 1 2 3 4 5 6 7	[illegible]
17. Your Partner's attitude about professional development?	0 1 2 3 4 5 6 7	5.4	0 1 2 3 4 5 6 7	6.0
18. Your desire to remain in the profession?	0 1 2 3 4 5 6 7	5.9	0 1 2 3 4 5 6 7	6.2
19. Your Partner's job satisfaction?	0 1 2 3 4 5 6 7	[illegible]	0 1 2 3 4 5 6 7	5.6
20. Your job satisfaction?	0 1 2 3 4 5 6 7	[illegible]	0 1 2 3 4 5 6 7	5.6
21. Your commitment to PARTNERS?	0 1 2 3 4 5 6 7	4.1	0 1 2 3 4 5 6 7	[illegible]

22. Please review page 1 of your PARTNERS manual to see what talents you listed in October. How would you fill this page differently now that you have completed PARTNERS?

23. Have your perceptions of yourself as a teacher changed this year?

a) If yes, briefly explain.

b) When did these changes occur?

24. Do you believe PARTNERS has provided you with a career ladder? [illegible] Yes [illegible] No

25. Are you currently in a Masters program?

a) [illegible] Yes _____ No 14 Already have a Masters

b) Do you plan to pursue one? _____ Yes _____ No

[illegible]

26. If a new teacher was to come into your school, what would you tell them about teaching? [illegible]

27. In what ways have you changed as a professional educator this year?

28. If you could, how would you change pre-service university training?

29. Will you be teaching next year?

EDUCATION SERVICE CENTER REGION 20

TI-IN UNITED STAR NETWORK.

TI-IN Network/Region 20
Teacher Survey Results
1990-91

Description: Nine distance learning teachers, who taught students from Star Schools during the 1989-90 school year, were asked to give written responses to the following prompt.

> **Please outline or describe your perception of the instructional impact of the Star School project on students in your classes.**

Below is each individual response.

• I believe that the Star Schools program was a very motivating experience for the students enrolled in the science courses. The courses often times presented a real challenge, requiring students to stretch their minds. The Star School students were able to share lab data with students from all over the country. It was an advantage for sites that did not have equipment needed for a lab to experience experiments through television.

I saw positive impact in one of the Astronomy sites which built its own telescope. Another site had a student enrolled in Marine Science that received the highest grade in the entire course.

• Some of the Star Schools had very successful experiences in my classes while others could not handle the way in which things had to be done for this type of class. No generalities apply in my class.

• The TERC project was great! I wish we could have incorporated it in my "regular" physics class. Many Star School students tried physics who would not have had the opportunity otherwise.

• Some Star Schools expressed gratitude for having the opportunity to take our classes. Some of the sites had obviously screened their students and had "top" students. Some districts, however lacked supervision and the students' grades reflected this.

• The students in my class from Star Schools were very appreciative of the opportunity.

• I had many excellent Star Schools sites. There are bright, serious students in every school. The key to success in TI-IN classes is screening at the site and hiring a good facilitator. This applies to any school.

• Some of the Star Schools did not seem to listen as well or care about TI-IN classes. It seemed as if the students did not appreciate TI-IN. Other Star Schools were exceptional and I was not able to tell them apart from non-Star Schools.

• The Spanish III class was very small and disappointing because of the size. Instructionally, the students were able to continue their Spanish studies where otherwise they would not be able to. The curriculum allowed one student to perform well on the College Board Spanish Achievement Test and be admitted to Harvard. Other students benefitted from the contact with other schools and students from around the country.

• The Star Schools Program seemed to be very beneficial to the sites that were in remote areas, such as the BIA (Bureau of Indian Affairs) schools. Star Schools allowed interaction with areas outside of the school environment. By far the sites that were the best prepared and self motivated were the Illinois sites. I was also aware of the sites in Alabama who did well. They were also appreciative of the opportunity to enroll in the TI-IN classes.

It was a wonderful opportunity to have several of the Star Schools in Sociology. The subject matter was enhanced by the many opportunities to teach the concepts with the examples right in front of us because of the regional and cultural differences among the sites. I will especially miss not having my Indian schools very much.

TI-IN UNITED STAR NETWORK.

GRADE DISTRIBUTIONS

Comparison of Students in Star Schools and Non-Star Schools

Yearly Grade Averages	Total Number of Students	Percentage of Total Students	Number of Star School Students	Percentage of Total Star School Students	Number of Non-Star School Students	Percentage of Total Non-Star School Students
90-100	1539	30.58%	303	30.3%	1236	30.6%
80-89	1705	33.88%	366	36.6%	1339	33.2%
70-79	901	17.90%	155	15.5%	746	18.5%
60-69	322	6.40%	68	6.8%	254	6.3%
Below 60	428	8.50%	60	6.0%	368	9.2%
No Grade Given	138	2.74%	48	4.8%	90	2.2%
TOTALS	5033	100.00%	1000	100.0%	4033	100.0%

A SUMMARY REPORT

USING THE TLTG PHYSICAL SCIENCE PROGRAM IN A DISTANCE LEARNING ENVIRONMENT

Texas Learning Technology Group
P.O. Box 2947
Austin, Texas 78768-2947

September 27, 1990

I. Star Schools Program

In 1987 Congress created the Star Schools Program to provide demonstration grants to telecommunication partnerships. As stated in the program notice that appeared in the Federal Register on April 5, 1988, the purpose of the Star Schools Program is to:

- develop, construct, and acquire telecommunication audio and video facilities and equipment
- develop and acquire instructional programming, and
- obtain technical assistance for the use of such facilities and instructional programming in order to encourage improved mathematics, science, and foreign languages, as well as other subjects such as vocational education.

The TI-IN Network, Inc., of San Antonio, Texas, partnered with the Region XX Education Service Center, was awarded one of the demonstration grants. In turn, Region XX Education Service Center leased from the Texas Learning Technology Group (TLTG) their newly completed TLTG Physical Science Program for delivery over TI-IN's satellite network. TLTG provided one set of courseware materials. The complete 15-unit program consists of 15 videodisc sides, 67 floppy diskettes, chemistry and physics resource guides for teacher use, chemistry and physics guides for student use, and a student assessment program. The resource guides for the teacher contain the following material for each unit: list of objectives, pacing chart, script, summary notes, practice sets, instruction for wet laboratory instruction, suggested demonstrations, and glossary.

In addition to providing the TLTG Physical Science Program, TLTG provided 3 copies of the teacher resource guides, 200 sets of student manuals, 200 sets of the assessment program, teacher training, and technical support. TLTG was also contracted to perform an evaluation of the use of the courseware in a distance learning environment. Region XX collected the necessary evaluation data, disseminated the courseware materials, and provided training for the classroom facilitators.

The TLTG Physical Science Program was installed and ready for use for the 1989 summer school session. Waelder ISD was the only site that elected to receive the programming. Four students were enrolled at this site. This summer session did not provide an adequate number of students for testing, but did provide time for the studio teacher to become familiar with the curriculum and the technology. Also, it provided time for TI-IN technicians to test the computerized video and graphic output. No data were collected from the students during the summer session. Following this pilot test, a field test was commissioned to examine specific student and teacher behaviors during the 1989-90 academic year.

This report describes the findings of the field test that was conducted during 1989-90. TLTG collected information from the students concerning their views on televised instruction, the use of videodisc-based programs, and their achievement and interest in physical science.

II. Program Modifications

TLTG Physical Science is a 160 hour course delivered through interactive videodisc. It is divided into 15 instructional units, including one introductory unit, seven chemistry units, six physics units, and one unit on energy resources that can be taught at the end of either semester. In a typical unit, students learn the concepts through several methods - teacher demonstrations, traditional wet laboratory activities, written assignments, and innovative videodisc-based instruction. Two types of videodisc-based instruction are teacher-led instruction involving the entire class, and small-group practice activities and simulations, allowing three to four students to work together.

Although it was not known initially what modifications would be needed to deliver the courseware via distance learning, very few changes were actually needed. These changes can be categorized as technical or curriculum modifications.

Technical Modifications

Two technical modifications were made in order to deliver the courseware via distance learning.

A. An RGB encoder was integrated to allow the computer screen to be captured through direct video output.

B. An electronic pointer was added to allow the teacher to point to items displayed on the computer screen.

Curriculum Modifications

One necessary curriculum modification was the selection of instructional units or sections of units to be taught. Only one unit, Energy Resources, was not feasible for use in a distance learning environment because it was designed as a 5 day small group simulation exercise. During the fall semester, four of the six physics units (Introduction to Physical Science, Motion and Force, Work and Simple Machines, and a portion of Electricity and Magnetism) were taught. During the spring semester, all of the Chemistry units were taught, with the exception of the unit entitled Nuclear Chemistry and Radioactivity. The two physics units and one chemistry unit are appropriate for distance learning delivery, but were not taught due to lack of time.

III. Student Population

Seventy-seven students from 5 states were enrolled in the TI-IN Physical Science course. The table below shows a breakdown of student enrollment.

State	Number of Sites	Number of Students	Range of Class Size
Illinois	5	19	2-10 students
Minnesota	1	11	N/A
Mississippi	1	6	N/A
New Mexico	3	34	4-17 students
Texas	2	7	2-5 students
TOTALS	**12**	**77**	

In January, a questionnaire was sent to all students enrolled in the physical science course. Questionnaires, returned by 36 students, indicated that 83% of the students speak English in the home, 11% speak Navajo, and 6% speak Spanish. With regard to grade classification, 53% were 9th graders, 6% were 10th graders, 22% were 11th graders, and 19% were 12th graders. Only 5 of the 77 students enrolled in this course were taking the course for the second time.

IV. Instructional Use of Courseware

A questionnaire on instructional practices was completed in May by the TI-IN teacher, David Marshall. Mr. Marshall indicated that he used the TLTG Physical Science program during approximately 50% of the on-air instructional time. Typical uses of the courseware, as reported by Mr. Marshall, included:

- providing initial instruction of a concept
- emphasizing or repeating instruction previously provided by the teacher
- reviewing concepts
- practicing concepts

These uses are very similar to those of a teacher in a regular classroom.

In his experimentation with various teaching activities, Mr. Marshall discovered an innovative way to engage the students in the interactive practices and simulations. He would select a site and have them call in to complete the practice or simulation with him, while the other sites would work on paper/pencil activities provided by the student manual. This was certainly a novel solution to the lack of a computer system on-site.

The advantages of the courseware as described by Mr. Marshall included the well-developed curriculum, abundance of teaching suggestions, and the visual impact of medium through which concepts were presented. He could list no disadvantages of using the courseware.

Based on observations of Mr. Marshall's teaching, TLTG staff felt that his use of the courseware was not much different than the way a teacher in a regular classroom would use it. Staff were impressed by his ability to reduce the amount of time off-task while waiting for a site to connect by using strategies such as asking several questions in succession.

Teaching the content does seem to require more time in a distance learning environment than in the regular classroom as indicated by the number of instructional units not taught. Two instructional units were not taught during the fall (physics) semester, and one was not taught during the spring (chemistry) semester. Several factors may have contributed to this.

- First, the fall semester was slow to begin because of fluctuating student enrollment.
- Second, the semester exam for the fall was administered prior to the Christmas holidays, which reduced the time spent on the physics units by almost 3 weeks.
- Third, time was lost in waiting for students to connect via telephone to the originating classroom so that they could respond to questions asked by the teacher. It was stated earlier in this report that Mr. Marshall employed a variety of strategies to decrease the amount of time lost.
- Fourth, Mr. Marshall took additional time for review to ensure that all students understood the concepts.

V. Field Test Plan

The field test was designed to answer the following questions:

Is the TLTG Physical Science Program effective in teaching content delivered via satellite?

What are the student attitudes toward the TLTG program delivered via satellite?

Achievement and interest information was collected from students in all sites. However, to reduce the testing burden, interest information was collected during the fall semester when physics was taught and achievement information was collected during the spring semester when chemistry was taught.

An interest questionnaire was used to determine student attitudes toward the televised delivery of the TLTG Physical Science Program. The questionnaire was specially designed for this field test effort. It was administered at the end of the fall semester following the completion of the physics semester. Thus, questions refer to learning physics concepts (Appendix A).

The achievement instrument used in the study was the TLTG Mastery Assessment for Chemistry. It is a 50 item multiple choice criterion-referenced test. The reliability of the instrument was calculated to be 0.84 using the Kuder-Richardson 20 formula. This instrument was prepared by an external test developer in concert with the TLTG staff and has been used in previous evaluation efforts (Appendix B).

TLTG also learned about key factors that contribute to a successful learning environment in a distance learning class.

VI. Student Perception Findings

During the fall semester, student perceptions of the physics instruction were investigated using a questionnaire administered in mid-December. The questionnaire (Appendix A) was composed of three sections. Section I was composed of 3 questions related to general information regarding native language, grade level, and the number of times the student had taken physical science. The response is heretofore summarized in Section III, Student Population. Section II included 17 Likert-type questions related to the physics instruction received by the students. Section III asked 7 open-ended questions related to program characteristics. Thirty-six students responded to the questionnaire.

In Section II of the questionnaire, 72% of the students agreed or strongly agreed that the physics semester was interesting. Sixty-nine percent agreed or strongly agreed that the physics information was useful to their lives. Fifty-eight percent thought that they had learned a lot in the course, while 36% were undecided. Seventy-five percent of the students agreed or strongly agreed that the laboratory activities helped them understand the concepts. Eighty-three percent agreed or strongly agreed that the videodisc presentations helped them learn.

Seventy-two percent of the students agreed or strongly agreed that they liked learning physics through a televised course. Sixty-nine percent agreed or strongly agreed that televised courses will improve high school courses in the future, while 28% were undecided. Only 38% of the students felt that they were able to speak with the teacher as much as they needed, while 36% percent disagreed with that statement. In responding as to whether or not they would enroll in other televised courses, 61% agreed or strongly agreed and 39% were undecided. Students' feelings about the teacher did not appear to contribute to this response since students overwhelmingly felt that the teacher did a good job teaching physics. Table 1 displays the number of responses per category for each question in Section II of the questionnaire.

Student responses to the open ended questions in Section III of the questionnaire did not provide much insight into their perceptions of televised courses. Nine of the 36 questionnaires were returned with no or unintelligible responses to the questions. In response to the question about what students liked most about learning physics, several indicated they liked the labs (14), the physics content, such as waves and light (4), the fact that it was televised (2), the computer sequences (2), creativity of the program (2), having a good teacher (1), small class size and site competition (1), and everything (2).

In response to the question about what they like least about learning physics, students indicated the tests (7), not getting to talk with the teacher and get to know him (4), nothing (3), the lab activities (3), the content (3), the logistics of sending and receiving assignments (2), confusing content (1), an unprepared facilitator (1), and being bored (1).

Information obtained from the students regarding what physics topics they like least and best were equally mixed with all of the units being listed. Student responses as to the advantages of learning physics through a televised class included the following responses:

- being able to tape each class for further review
- having a deadline for work thus making students organize themselves
- enjoying it more everyday
- more fun
- having more personal autonomy in the classroom
- the computer sequences
- having physics offered to students at a small schoc! where they may not ordinarily have the opportunity
- challenging course
- more qualified teachers
- interesting to learn from a teacher who can't see you
- teaches more students
- helps you go to college
- more hands-on experiences
- the illustrations

The disadvantages listed by the students in le··rning physics through a televised course include:

- missing a lot of information when you are absent
- lack of individual assistance from the teacher
- not seeing all of the other students
- difficulty in paying attention
- not having anyone pay attention to you
- scheduling of school being inconsistent with the scheduling of the televised class
- not talking to the teacher as much as you might like
- technical problems

VII. Achievement Findings

During the spring semester, student chemistry achievement was examined. Using a criterion-referenced chemistry test, pre-test and post-test scores were collected. The pre-test was administered during late January and the post-test was administered

during mid-May. Table 2 shows the pre-test and post-test scores of students by student. Table 3 displays the means and standard deviations of the two sets of scores. For the pre-test, a mean of 22.804 was obtained with a range of scores from 10 to 47 with a maximum of 5C. For the post-test, a mean of 32.604 was obtained with scores ranging from 15 to 47.

The pre-test mean and the post-test mean were compared using a paired group two-tailed t-test. Although a one-tailed t-test would be an appropriate comparison, the two-tailed t-test produces a more conservative measure. The results of the t-test are found in Table 4. A probability of 0.0001 was calculated, which indicates that the difference is unlikely to be due to chance. The instruction students receive appears to increase students knowledge of physical science concepts. However, the knowledge increase cannot be attributed to certain portions of the instruction without additional research.

VIII. Contributors to a Successful Learning Environment

This study also identified the following factors as being key contributors to a successful learning environment: the studio teacher, the facilitator, and the instructional materials. These factors are characteristic of the satellite transmission medium, and are not unique to the TLTG curriculum. A description of each, however, does help to clarify the environment of this study.

A. The Teacher

The teacher in the distance learning environment is extremely important. Like the teacher in a classroom, the effective distance learning teacher has mastered the content. In addition, however, the distance learning teacher's personality needs to be dynamic enough to capture student attention long distance. The distance learning teacher tends to be more deliberate, and to exhibit a heightened sense of interest and encouragement, knowing the student has a greater option not to be responsive when the teacher has no visual perception of the student. The distance learning teacher, then, necessitates more of a television personality.

Within the span of control of the distance learning teacher is the quality of the instructional delivery from the broadcast site. However, to ensure a successful course for the student the on-site classroom based activities also must be well executed, and the environment must be constructive. The distance learning teacher relies on the classroom facilitator for this part.

B. The Facilitator

The facilitator is a critical link between the student and the distance learning teacher. The facilitator is responsible for organizing and managing the learning environment, and for carrying out the instructions of the teacher. In the case of science classes the facilitator is responsible for laboratory instruction.

In this study several students commented that the facilitator was unprepared or slow to submit papers for grading. Student inattention/disruption during class interfered with the learning of other students. Relating to laboratory work, the proper materials and equipment were not available at all sites. The distance learning teacher in this study was also concerned about student absenteeism, especially in two of the sites.

These issues are inherent in all classrooms and the degree of success with each is unique to each district. It is important to this study to recognize that the classroom dimension partnered with the delivery of instruction by the distance learning teacher, and the instructional materials produces the results.

C. The Instructional Materials

The instructional material is the teacher's most critical component, both in classroom based instruction and in distance learning instruction. The teacher's dynamic personality and the constructive classroom environment set the stage for the subject matter. To produce optimal results the instructional material must be organized, accurate in content, motivating to the student, clear in communication, and of the production quality that today's student expects.

The TLTG Physical Science Program was used to provide motivating visual images and sequences. It also provided core content material to support the teacher's instruction of the concepts. The production quality of the TLTG Program is high in the use of video, graphics, text, and sound.

Students made many positive comments about the use of the storylines, practices, and simulations. The combination of high production quality and sound instructional design met the criteria of the distance learning teacher.

For one case study of the combination of the distance learning teacher, an effective facilitator, and the TLTG instructional materials refer to the TI-IN United Star Network Program and Process Evaluation Summer 1989, by Jennings Bryant with Scott Davenport, Jana Hyde, Debbie Elliott-Taylor, University of Alabama, pages 17-26.

IX. Summary

This study indicates that the TLTG interactive videodisc curriculum can be effective in producing student learning in a distance learning environment. Given the analysis of test scores and questionnaires, most students did learn physical science concepts and found the class to be interesting.

Saying that they "learned a lot" students were very responsive to the video segments and saw the connection between physics and the real world. Both the distance learning teacher and the students valued the program with the teacher listing no disadvantages to the program and the students saying it helped them to learn.

The disadvantages listed on page 9 are inherent in distance learning classes. The facilitator may be able to resolve several of the issues and the distance learning teacher. through increasingly encouraging the students, can help solve other of the disadvantages listed.

Overall, the marriage of the two delivery technologies, satellite transmission and interactive videodisc, was compatible and complementary. The use of the videodisc and computer materials in addition to the usual transparencies added a creative and lively touch to the instruction. As instructional programming for distance learning becomes more sophisticated, interactive videodisc can offer an advantage by helping to increase student interest and achievement.

TABLE 1: Student Perception Database

Survey Question	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	No response
Course Interesting	6	20	10	0	0	0
Understandable	5	19	4	8	0	0
Helpful labs	11	16	9	0	0	0
Fair tests	7	24	4	1	0	0
Useful information	10	15	9	2	0	0
Videodisc helpful	7	23	5	0	1	0
Difficult to attend	5	2	9	14	6	0
Learned a lot	7	14	13	2	0	0
TI' improves class	14	11	10	0	1	0
Likes LD learning	9	17	6	3	0	1
Easy to talk	11	13	8	0	1	3
Teacher access	4	10	7	10	3	2
Good teaching	19	14	2	0	1	0
Enroll other LD	13	9	14	0	0	0

TABLE 2: Achievement Database

	ID#	Pre-test	Posttest
1	8788	15	•
2	1914	39	45
3	1111	15	21
4	2222	39	33
5	2230	47	47
6	3333	35	41
7	4444	36	43
8	5555	17	23
9	6666	20	23
10	4854	22	47
11	2491	16	15
12	4754	17	23
13	3420	17	22
14	5872	12	•
15	8325	19	19
16	3029	18	26
17	442	14	27
18	3487	24	40
19	8070	18	33
20	8035	21	32
21	4587	29	32
22	4750	22	38
23	7777	31	44
24	8888	20	39
25	9999	37	44
26	1010	25	38
27	1212	10	25
28	1313	18	28
29	1414	28	42
30	1515	13	33
31	2638	26	24
32	1282	24	39
33	6002	31	42
34	820	21	34
35	1616	20	29
36	9202	21	30
37	7309	29	37
38	3005	19	33
39	8746	27	37
[illegible]	[illegible]	[illegible]	[illegible]

	ID#	Pre-test	Posttest
41	1717	18	35
42	2820	24	34
43	1818	22	34
44	9639	23	24
45	1919	17	27
46	2020	26	24
47	788	28	34
48	2121	15	23
49	2323	15	31
50	2424	17	37
51	2525	22	34

TABLE 3: Descriptive Pretest and Posttest Statistics

X_1 : Pre-test

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
22.804	7.769	1.088	60.361	34.07	51
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
10	47	37	1163	29539	0

X_2 : Posttest

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
32.604	7.981	1.152	63.691	24.477	48
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
15	47	32	1565	54019	3

TABLE 4: Paired Group t-Test

Paired t-Test X_1 : Pre-test Y_1 : Posttest

DF:	Mean X - Y:	Paired t value:	Prob. (2-tail):
47	-9.438	-10.029	.0001

Note: 3 cases deleted with missing values.

Name ____________

ID # ____________

TI-IN Physical Science Student Questionnaire

PHYSICS SEMESTER

To help us improve the Physical Science program, please complete this questionnaire as honestly as you can. If you do not understand a question, please ask your facilitator for assistance. All of your responses will be kept confidential. Thanks for your help.

I. General Information

Directions. Answer the following questions by completing the sentence.

1. The language that I speak with my family at home is ____________.
2. I am in the ______ (9th, 10th, 11th, or 12th) grade in school.
3. This is the ______ (1st, 2nd , 3rd) time that I have taken physical science.

II. Instruction

Directions. Answer each of the following questions by circling either SA, A, U, D, or SD. Use the following scale.

SA = Strongly Agree A = Agree U = Undecided D = Disagree SD=Strongly Disagree

4. The physics semester of this course was interesting.	(SA A U D SD)
5. The physics information presented was understandable to me.	(SA A U D SD)
6. The laboratory activities in this course helped me to understand the information.	(SA A U D SD)
7. The tests given during this semester were fair.	(SA A U D SD)
8. The information I learned in the physics semester is useful to me.	(SA A U D SD)
9. The videodisc presentations used by the TI-IN teacher helped me learn.	(SA A U D SD)
10. I have trouble paying attention to the TI-IN teacher.	(SA A U D SD)
11. I learned a lot about physics during this semester.	(SA A U D SD)
12. I think televised courses will improve high school courses in the future.	(SA A U D SD)

13. I liked learning physics through a televised course. (SA A U D SD)

14. It was easy to talk with the TI-IN teacher. (SA A U D SD)

15. I was able to talk with the TI-IN teacher as much as I needed. (SA A U D SD)

16. I think the TI-IN teacher did a good job teaching physics. (SA A U D SD)

17. If I could, I would take other televised courses. (SA A U D SD)

III. Program Characteristics

Directions. Please answer each of the following questions in the space provided.

18. What did you like <u>most</u> about learning physics this semester? Why?

19. What did you like <u>least</u> about learning physics this semester? Why?

20. What physics topic do you think you learned the best?

21. What part of the physics semester gave you the most difficulty? Why?

22. What would have helped you overcome the most difficult part?

23. What advantages do you see in learning physics in a televised course?

24. What disadvantages do you see in learning physics in a televised course?

TLTG PHYSICAL SCIENCE MASTERY ASSESSMENT
CHEMISTRY

1. Which of the following would be considered a safe procedure while heating a substance in a test tube?

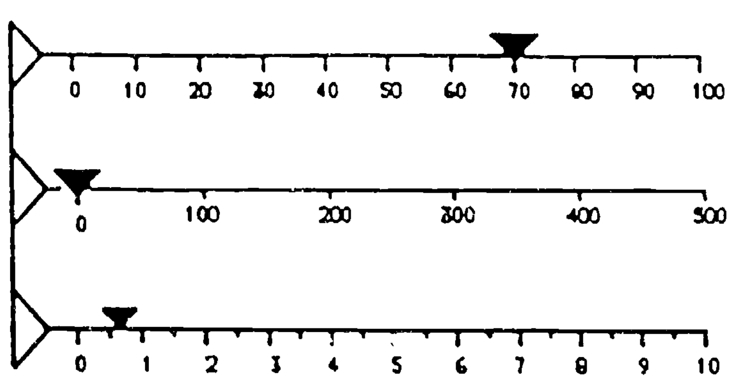
(A) Placing a cork in the test tube
(B) Pointing the mouth of the test tube away from yourself, but toward another laboratory group
(C) Taking off your goggles so that you can see exactly when the substance begins to melt
(D) Pointing the mouth of the test tube toward the wall

2. In the metric system, a centimeter is

(A) 0.01 meter
(B) 0.1 meter
(C) 10. meters
(D) 100. meters

3. A physical science student measures the mass of a beaker as 80 grams. What is the mass of the beaker in kilograms?

(A) 0.080 kg
(B) 0.80 kg
(C) 8,000. kg
(D) 80,000. kg



4. According to the picture above, what is the mass of the object on the balance?

(A) 70.6 grams
(B) 76 grams
(C) 70.06 grams
(D) 70 grams

9. Which of the following is an example of a chemical change?

(A) Evaporation of gasoline
(B) Burning of wood
(C) Melting of paraffin wax
(D) Freezing of water

<u>Question 10</u> relates to the following table.

Substance	Density (grams/cm^3)
Chloroform	1.5
Ebony wood	1.2
Mahogany wood	0.85
Oil	0.9
Water	1.0

10. Water, chloroform, and oil are poured into a container and form three layers. How are the fluids layered from top to bottom?

(A) Chloroform, water, oil
(B) Oil, water, chloroform
(C) Water, chloroform, oil
(D) Water, oil, chloroform

11. Iron filings are attracted to a magnet, but yellow sulfur powder is not. When sulfur and iron are placed in a test tube and heated, a new substance forms. This new substance is not attracted to a magnet. It is classified as which of the following?

(A) An atom
(B) A compound
(C) An element
(D) A mixture

12. According to the present theory of atomic structure, the nucleus of an atom is composed of which of the following?

(A) electrons only
(B) neutrons and electrons
(C) protons and electrons
(D) protons and neutrons

13. The periodic table indicates that the atomic number of silver, (Ag), is

(A) 47.
(B) 61.
(C) 107.868
(D) 108.

19. $\colon\ddot{\underset{\cdot\cdot}{\mathrm{I}}}\cdot$ will form a covalent bond with which of the following elements?

(A) $\mathrm{Na}\cdot$

(B) $\mathrm{Mg}\colon$

(C) $\cdot\ddot{\underset{\cdot\cdot}{\mathrm{Cl}}}\colon$

(D) $\mathrm{K}\cdot$

20. $\cdot\ddot{\underset{\cdot\cdot}{\mathrm{Cl}}}\colon$ will form an ionic bond with which of the following elements?

(A) $\cdot\ddot{\underset{\cdot\cdot}{\mathrm{I}}}\colon$

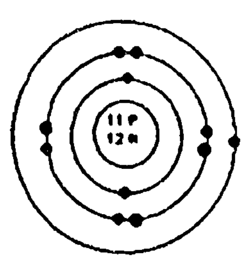
(B) $\mathrm{Na}\cdot$

(C) $\cdot\ddot{\underset{\cdot}{\mathrm{O}}}\colon$

(D) $\cdot\ddot{\underset{\cdot}{\mathrm{N}}}\cdot$

21. When a fluorine atom gains an electron from a lithium atom and the stable compound LiF results, the bond that is formed is

(A) covalent
(B) diatomic
(C) electric
(D) ionic



22. Consider the possible bonding of the atom shown above. The atom would probably

(A) lose an electron
(B) from a negative ion
(C) gain an electron
(D) remain stable and not form a bond

29. All of the following procedures can be expected to increase the rate of a chemical reaction EXCEPT

(A) changing the temperature of the reaction
(B) decreasing the concentration of the reactants
(C) increasing the surface area of the reactants
(D) introducing a catalyst into the reaction

30. When dissolved in water, many acids release which of the following particles?

(A) H^+ ions

(B) H_2 molecules

(C) $(OH)^-$ ions

(D) O_2 molecules

31. When naming acids such as HCl, HBr, and HI, the prefix "hydro" is added and the "ine" of the element is replaced with which of the following before the word "acid" is added?

(A) "ic"
(B) "ate"
(C) "ite"
(D) "ide"

32. Which of the following is a property of many acids?

(A) A bitter taste
(B) A slippery feel
(C) Malleability
(D) The ability to react with many metals to produce hydrogen gas

33. When a strong acid or base is added to water it

(A) dissociates completely
(B) does not dissociate
(C) dissociates slightly
(D) changes from red to blue as it dissociates

38. Acid rain can be caused by all of the following EXCEPT

(A) automobile exhaust
(B) coal-burning power plants
(C) earthquakes
(D) volcanic eruptions

39. When a spoonful of juice crystals is dissolved in a large glass filled with water, the crystals are called the

(A) solute
(B) solution
(C) solvate
(D) solvent

40. Which of the following procedures does NOT increase the rate at which a sugar cube dissolves in water?

(A) Grinding the cube
(B) Freezing the solvent
(C) Heating the solvent
(D) Shaking the mixture

41. What happens when an ionic compound, lithium chloride, is placed in water?

(A) Solute particles in solution are uncharged.
(B) The solute does not dissolve.
(C) The molecule lithium chloride is found in solution.
(D) The solute breaks apart into lithium and chloride ions.

42. Which of the following is an example of a gas-liquid solution?

(A) Air in water
(B) Antifreeze in water
(C) Bronze alloy
(D) Salt in ocean water

43. When 1.0 gram of a salt is added to a beaker containing a solution of the salt, the salt crystals dissolve. It can be concluded that the original solution was

(A) concentrated
(B) saturated
(C) supersaturated
(D) unsaturated

46. It has been determined that a vase from an archaeological dig is emitting ionizing radiation that can only be stopped by very dense materials such as lead or concrete. Which of the following types of radiation is most likely being emitted from the vase?

(A) Alpha
(B) Beta
(C) Gamma
(D) Proton

47. The half-life of the radioactive isotope silver-104 is 30 minutes. After how many minutes will about 20 grams of a 40-gram sample of the silver-104 isotope remain?

(A) 0
(B) 30
(C) 60
(D) 90

48. Which of the following statements about the normal operation of nuclear reactors is accurate?

(A) They release large amounts of chemical pollutants into the air.
(B) The nuclear waste is quickly and safely disposed at the reactor site.
(C) They produce electricity by controlled chain reactions of radioactive substances.
(D) The hot water surrounding the reactor core can be used to provide hot water for communities in the area.

49. Which of the following isotopes should be expected to be radioactive?

(A) $^{48}_{22}Ti$
(B) $^{88}_{38}Sr$
(C) $^{192}_{76}Os$
(D) $^{244}_{94}Pu$

50. Which statement best describes how a Geiger counter works?

(A) Water vapor condenses along a path traveled by ionizing radiation.
(B) Radioactive particles ionize argon gas in a tube and the resulting electric current is amplified and heard as a clicking sound.
(C) Particles ionized by radiation cause black streaks appear on sensitive photographic paper.
(D) A material sensitive to radioactive emissions glows when mixed with a radioactive substance.

MISSISSIPPI STATE UNIVERSITY

Demonstrations and Concepts for Physics Teachers
-- to provide the high school physics teacher with tools necessary to teach high school physics when focusing on the development of concepts, problem-solving techniques, and experimentation.

Copies of course syllabi are given in Appendix A. A videotape overview for each course (about 15 minutes) illustrating course highlights is attached.

The following table further describes these courses:

Table 1

Course	Hours * Earned	Credit Student Enrolled	Staff Development Participants	Number of Programming Hours Developed
Junior High Science Teacher Institute	3	7	1	33
Geology: A Science of a Living Plant	3	15	0	45
Demonstrations and Concepts of Physics I	3	30	2	36
Theory of Equations	3	32	0	33

* college credit; may be undergraduate or graduate

A further description of the downsite location where these students took the telecourses is given in the table on the following page (Table 2).

Table 2
SUMMARY OF ENROLLMENT FOR TI-IN UNITED STAR NETWORK/MSU COURSE OFFERINGS - OCT '89-JUNE '90

PREPS Districts	Course Offered			
	JHSTI	Geology	Physics	Math
Alcorn			2	(2)
Bay St. Louis		1	1	(1)
Choctaw County			(1)	
Columbia				(1)
Columbus				1
De Soto				
Greenville				
Greenwood				
Hattiesburg			3(2)	2
Hinds County				
Holly Springs				
Jackson				
Jones				
Lauderdale County				
Laurel				
Leflore County				
Louisville				(2)
McComb				3
Meridian				1(2)
Moss Point				
Natchez/Adams				
Pascagoula		1	2	2(1)
Petal				
Starkville			1	1
Tupelo				1(2)
Vicksburg/Warren			4	
Wilkinson County				
Yazoo			1	
MSU		1		
Choctaw Agency				(1)
TI-IN United Star Network				
	TX 3 IL 4	AL 3 TX 4 CA 1 NM 1 CO 2 IL 1	TX 2 KS 1 AL 5 CA 1 IL 3 NM 1	TX 6 OH 1 NC 1 AL 1 IL 1
PREPS TOTAL	0	2	17	22
TI-IN TOTAL	7	12	13	10
OTHER		1		1
GRAND TOTAL	7	15	30	33

Note: Parentheses indicate number of students from other districts who participated at a PREPS site.

Evaluation of Courses

Evaluation of these courses began with a needs assessment questionnaire which was adapted as appropriate and used by all four instructors. The purpose of this questionnaire was to give the instructors background information on each student (e.g., degrees earned, course currently taught, entry knowledge or previous experience, current teaching situation, etc.) and information about their desired learning outcomes. Although this information was used for planning purposes by the instructors and is not presented for each course, a sample is given in Appendix B.

At the completion of each of the courses, students were asked to complete a course evaluation questionnaire. The results are given in Appendix C. The most obvious finding is the enthusiastic and positive response to all courses.

For the Junior High Science Teacher Institute, the only telecourse to allow the participants enough time to implement any of the new skills learned, a follow-up survey was sent out. The results of this questionnaire is given in Appendix D.

Each of the instructors was asked to comment on their perception of the courses. Their responses are given in Appendix E.

Summary List of Downsites

A list of downsites is given in Appendix F. Table 2 shows the enrollment by course for downsite. No information is available on the enrollment at these sites other than for MSU-broadcast telecourses. Many downsites hosted teachers from other districts who desired to view these courses. These numbers are given in parentheses.

Principals at each downsite were asked in what ways this equipment was used for activities outside of STAR Schools. The following responses were given:

1. Olive Branch High School: used equipment to receive University of Alabama broadcasts.
2. Ackerman Elementary: watched educational channels from Canada.

3. Warren Central High School: watched foreign language and Discovery Channels.

4. Pascagoula High: watched several other programs on the KU band.

5. Northeast Jones High: watched news broadcasts.

6. Natchez High: viewed staff development and student enrichment from other networks; principals from nearby districts were also involved.

TI-IN UNITED STAR NETWORK.

PARTICIPANT QUESTIONNAIRE

THEORY OF EQUATIONS FOR SECONDARY TEACHERS

1. Are you taking this course for credit or for staff development?

   88.5% CREDIT   7.7% STAFF DEVELOPMENT

5. What is your normal teaching assignment?

   Pre-Algebra
   Algebra I
   Algebra II
   Algebra III
   College Algebra
   Mathematics (7-8)
   General Mathematics I (9-12)
   General Mathematics II (10-12)
   Advanced Mathematics
   Mathematics for Teachers
   Pre-Calculus
   Calculus
   Trigonometry
   Geometry
   Introduction to Computers
   TI-IN Facilitator
   Sciences
   Elementary analysis
   P.E.

6. Number of students your school district:

   30.8% under 1000
   11.5% 1000-2000
   42.3% 2001-5000
   7.7% 5001-10,000
   NONE 10,000 or more

7. Number of students in your school:

   19.2% under 249
   19.2% 250-500
   46.2% 501-1000
   7.7% 1001-2000
   NONE 2001-3000
   NONE 3001-more

8. Number of years teaching experience:

NONE 0
46.2% 1-5 years
11.5% 6-10 years
23.1% 11-15 years
11.5% 16-20 years
7.7% 21 or more years

9. Are you certified in mathematics?

92.3% yes 7.7% no

10. If not certified in mathematics, what is your area of certification?

Business, Biology & Chemistry

11. What type of certificate do you hold?

3.9% Professional
23.1% A
11.5% AA
7.9% AAA
3.9% B.A.
11.5% B.S.
7.7% Provisional
19.2% Secondary Math.
3.9% 09 (6-12)
3.9 Master's

12. What is your highest degree?

57.7% Bachelor's
34.6% Master's
NONE Specialist
7.7% Doctorate

13. What is your average mathematics class size?

15.4% 10-15 pupils
11.5% 16-20 pupils
38.5% 21-25 pupils
26.9% 26-30 pupils
NONE 31 or more pupils

16. How many courses via video instruction have you previously taken?

92.3% 0
7.7% 1
NONE more than 1

17. How frequently do you view other TI-IN staff development courses?

    __3.9%__ Weekly
    __NONE__ Monthly
    __11.5%__ Once a semester
    __19.2%__ Once a year
    __65.4%__ Never

** 18. Why are you taking this course?

    __3.9%__ Required for certification
    __NONE__ Required by district
    __23.1%__ Sounded interesting
    __42.3%__ Need course credit
    __11.5%__ Other

19. What are the major problems facing teachers in today's secondary mathematics classrooms?

    - Integration of appropriate technology.
    - Lack of student motivation/interest.
    - Lack of parent co-operation/support.
    - Teacher/pupil ratio.
    - Lack of resources.
    - Classroom control/management.
    - Mathematics anxiety.
    - Stimulating interest
    - Students' poor backgrounds in pre-requisite skills.
    - Lack of opportunities to share ideas with other mathematics teachers.
    - Drugs
    - Changes in teaching strategies.
    - Too much material must be covered
    - Teachers need more training in each subject they teach.
    - Lack of discipline
    - Time involved in giving retakes for the mastery skills required by the state.
    - Getting more students into higher math. course.

20. Do you have any suggestions for this course?

    - Need lots of examples.
    - Keep it practical as possible.
    - Be able to quickly know as much as possible about the way the polynomials behave before the students begin their analysis.
    - Use of manipulations.

** Note: 19.2% nonresponse and/or selection of more than one response.

21. What other information would you like to share with us about yourself, your teaching situation, or what you would like as a result of participating in this course?

- I am a participant in Ohio's classroom of the future project. As such, I am 1 of 23 teachers charged with the development of a curriculum to meet the needs of our students of the future.
- I feel one improves his teaching by attending class.
- I would like to gain a better understanding of mathematical equations. In turn, I hope to be able to convey more understanding to my students.
- My training has been in computers. At the college where I am teaching, I am also required to teach mathematics. Therefore, I am completing 18 hours of graduate mathematics for SACS accreditation.
- To be able to teach algebra to my students using current techniques.
- Most of my math. courses have been higher level courses. I hope this course deals more with topics I may teach in high school and will help me have a deeper understanding of key concepts.
- This was my first year back in teaching after working as a registered Medical Technologist for fifteen or sixteen years. It is different!
- As a 43 year old mother of two teen-ages, I am attempting this course to determine if I could adapt the extra demands of further graduate work into my lifestyle.
- I would like to see more graduate courses for secondary teacher offered.
- I changed professions and chose teaching 5 years ago. I have an excellent group of youngsters, currently, many of whom are gifted; however, the grades before them show very poor performance on standardized tests, and will require more creative teaching methods.
- It has been a few years since I took a college math. course. I feel I will be a little rusty. I am curious if I have the background need for the course.
- An A and something I could carry to my own classroom.
- Hopeful I'd like to find some different methods in finding roots (for my E.A. class).
- I am presently teaching Algebra I and Pre-Algebra at Morton High School. We are using the Saxan textbooks.
- I am a dedicated professional teaching math. in a school district whose TEAMS (Texas Ed. assessment of Minimum Skills) scores rank in lower half of the state at ninth and eleventh grade. Looking for ways to do a better job with our kids.

- I am looking forward to the course to help refresh me on things I may have forgotten and also introduce me to some new ideas I can use in the classroom. I am very nervous, since this will be my first satellite experience.
- I have taught at Biggerville for the last 3 years. I'll be teaching at Booneville this next year, and will be teaching Algebra I for the first time. I could use any suggestions you might have to help me become an effective Algebra and Geometry teacher.
- I am looking forward to the course. I am also apprehensive about the United Star Network, as I've never participated in this before.
- I am working on my masters degree in Math Education so I selected to take this course. I would consider teaching in the high school level and I feel this course would help me prepare for that possibility. I have taught junior high math. for 10 years.
- I am not as interested in more advanced math. information as I am in learning a better way to get across the information I already have.
- I would like to refresh and sharpen my skills for solving more complicated equations, etc. in order to facilitate my Calculus class, especially as I work with our Math/Science Team in preparing for state competition.

RESULTS OF THE COURSE EVALUATION QUESTIONNAIRE

THEORY OF EQUATIONS FOR SECONDARY TEACHERS

		STRONGLY DISAGREE	DISAGREE	NEITHER AGREE NOR DISAGREE	AGREE	STRONGLY AGREE
1.	The course content was appropriate.	0	0	0	32%	68%
2.	The telecasts have been well-organized.	0	0	0	20%	80%
3.	The telecasts have accomplished the stated objective.	0	0	0	24%	72%
4.	Each segment made a contribution to the entire program.	0	0	0	28%	72%
5.	All activities discussed or demonstrated were appropriate for the lesson content.	0	0	0	28%	72%
6.	The sequence of lessons was appropriate.	0	0	0	28%	72%
7.	Each segment demonstrated in-depth planning.	0	0	4%	28%	68%
8.	The coverage of each topic was adequate.	0	4%	4%	32%	60%
*9.	Each lesson was interesting and informative.	0	4%	0	28%	68%
10.	The graphics and audio enhanced each telecast.	0	4%	4%	52%	40%
**11.	Learner participation was encouraged.	0	8%	4%	36%	52%
12.	The language used was appropriate.	0	0	4%	32%	64%
13.	The course requirements were appropriate for the amount of credit received.	0	0	0	40%	60%
14.	The textbook was useful.	0	0	16%	40%	44%

* Hard to find a T.V. interesting but it was informative.
** Phone did not work, hard to participate with T.V..

		STRONGLY DISAGREE	DISAGREE	NEITHER AGREE NOR DISAGREE	AGREE	STRONGLY AGREE
***15.	Each telecast looked well on the screen.	4%	4%	0	36%	56%
16.	The lighting was appropriately arranged.	0	0	0	40%	60%
17.	The camera shots were adequate.	0	0	0	48%	52%
18.	Overall, the production of this course was very well done.	0	0	0	36%	64%
19.	The video instructor was readily accessible to students out of class.	0	0	0	12%	88%
20.	The video instructor demonstrated content knowledge.	0	0	0	12%	88%
21.	The video instructor communicated a sincere interest in the course.	0	0	0	12%	88%
22.	Grading and evaluation procedures were fair and objective.	0	0	4%	36%	60%
**** 23.	This course has helped me learn new techniques/ideas which I can use in my own situation.	0	4%	4%	32%	60%
24.	This course has been an easy way to have access to a undergraduate/graduate course.	0	0	4%	12%	84%
25.	The fee for receiving graduate credit ($150) was reasonable.	0	0	4%	32%	64%

26. What did you like most about this course?
- Easy to follow.
- The instructor explained well.
- The instructor was enthusiastic.
- The instructor was very personable.
- The relaxed atmosphere of sitting in front of T.V..
- The explanations were more than adequate.
- The caring and sincerity of instructor.
- The instructor was excellent.
- Being able to tape the lecture for reviewing.
- Being able to take it in the town where the student lives.
- Being able to get college credit without leaving home.
- Examples are very helpful for student.
- Very convenient way to get credit.
- The course content itself.
- The time-scheme.

*** Telecast blacked out 3 times, some technical difficulties, occasionally bad reception.

**** Would be helpful to know the point value on the test.

Appendix C

Course Evaluation Questionnaire
Junior High Science Teacher Institute

Would you please take a few minutes to help us evaluate this class? For each statement, will you circle the number that reflects your opinion? Return your completed questionnaire as soon as possible in the stamped, self-addressed envelope to:

Ms. Monica Caldwell
STAR Schools Project
Mississippi State University
P.O. Box 5365
Mississippi State, MS 39762

Please do not put your name anywhere on this document. Thank you.

Statement	Omit	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
		1	2	3	4	5
1. The stated objectives are appropriate.	20%				40%	20%
2. The telecasts have been well-organized.					20%	80%
3. The telecasts have accomplished the stated objectives.					40%	60%
4. Each segment made a contribution to the entire program.			20%		40%	40%
5. All activities discussed or demonstrated were appropriate for the lesson content.					40%	60%
6. The sequence of lessons was appropriate.					40%	60%
7. Each segment demonstrated in-depth planning.					40%	60%
8. The coverage of each topic was adequate.			20%		40%	40%

N = 5

Item	Strongly Disagree 1	Disagree 2	Neither Agree nor Disagree 3	Agree 4	Strongly Agree 5
9. Each lesson was interesting and informative.		20%	20%	40%	20%
10. The graphics and audio enhanced each telecast.				80%	20%
11. Learner participation was encouraged.				80%	20%
12. The language used was appropriate.			20%	40%	40%
13. The course requirements were appropriate for the amount of credit received.		20%		40%	40%
14. The participant's guide well supported the telecasts.					100%
15. The participant's guide was very helpful.					100%
16. Each telecast looked well on the screen.				40%	60%
17. The lighting was appropriately arranged.				40%	60%
18. The camera shots were adequate.				40%	60%
19. The videotape segments that were shown enhanced the broadcasts.			20%	20%	60%
20. The special guests added additional insights into the content of each telecast.				60%	40%

	Strongly Disagree 1	Disagree 2	Neither Agree nor Disagree 3	Agree 4	Strongly Agree 5
21. Overall, the production of this course was very well done.			20%	20%	40%
22. The video instructor was readily accessible to students out of class.			20%	40%	40%
23. The video instructor demonstrated content knowledge.			20%	20%	60%
24. The video instructor communicated a sincere interest in the course.				40%	60%
25. Grading and evaluation procedures were fair and objective.				20%	80%
26. This course has helped me learn new techniques/activities which I can use in my own situation.				60%	40%
27. This course has been an easy way to have access to a graduate course.				40%	60%
28. The fee for receiving graduate credit ($150) was reasonable.				40%	60%

29. What did you like most about this course?

Respondent 1: Very interesting topics and it was informative. It also gave some lab ideas that I can use.

Respondent 2: Ideas -- I would have liked to have more sharing of labs. I got several ideas.

Respondent 3: It gave new ideas and methods for changing old one. I enjoyed some of the taped segments. This was very enlightening.

Respondent 4: No comment

Respondent 5: The experiments that I can use in my class.

30. What improvements would you suggest?

Respondent 1: No comment

Respondent 2: a) more content and less preaching; b) edit videos -- don't need to see 27 minutes of swinging washers + adding 89 tablespoons of sugar; c) more individualized feedback -- ask what labs do you teach, and give improvement suggestions; d) less busywork for homework -- make it something we can use, like the natural acid indicators.

Respondent 3: I would like to see a broadcast that might be related more to high school sciences. I liked the time it was presented.

Respondent 4: No comment

Respondent 5: Start earlier in fall so class does not conflict with X-mas holidays!

Course Evaluation Questionnaire
Geology: A Science of a Living Planet

Would you please take a few minutes to help us evaluate this class? For each statement, will you circle the number that reflects your opinion? Return your completed questionnaire <u>as soon as possible</u> in the stamped, self-addressed envelope to:

Ms. Monica Caldwell
STAR Schools Project
Mississippi State University
P.O. Drawer 5365
Mississippi State, MS 39762

Please do not put your name anywhere on this document. Thank you.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1. The stated objectives are appropriate.	1	2	3	4 50%	5 50%
2. The telecasts have been well-organized.	1	2	3 10%	4 30%	5 60%
3. The telecasts have accomplished the stated objectives. *ran behind on all classes	1	2 10%	3	4 40%	5 50%
4. Each segment made a contribution to the entire program.	1	2	3	4 20%	5 80%
5. The sequence of lessons was appropriate.	1	2	3	4 20%	5 80%
6. Each segment demonstrated in-depth planning.	1	2	3	4 30%	5 70%
7. The coverage of each topic was adequate.	1	2	3 10%	4 40%	5 50%
8. Each lesson was interesting and informative.	1	2	3 10%	4 20%	5 70%
9. The graphics and audio enhanced each telecast. * great	1	2	3	4 40%	5 60%
10. Learner participation was encouraged.	1	2	3 20%	4 30%	5 50%
11. The language used was appropriate.	1	2	3	4 20%	5 80%

N=10

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
12. The course requirements were appropriate for the amount of credit received.	1	2	3	4 30%	5 70%
13. Each telecast looked well on the screen. *Due to transmission/reception problems thru TI-IN	1	2 10%*	3	4 20%	5 70%
14. The lighting was appropriately arranged.	1	2	3	4 30%	5 70%
15. The camera shots were adequate. *not enough time allowed for some graphics	1	2	3 10%*	4 30%	5 60%
16. The videotape segments that were shown enhanced the broadcasts.	1	2	3 10%	4 20%	5 70%
17. Overall, the production of this course was very well done.	1	2	3	4 30%	5 70%
18. The video instructor was readily accessible to students out of class.	1	2	3 10%	4 30%	5 60%
19. The video instructor demonstrated content knowledge.	1	2	3	4 10%	5 90%
20. The video instructor communicated a sincere interest in the course.	1	2	3 10%	4 20%	5 70%
21. Grading and evaluation procedures were fair and objective.	1	2	3	4 30%	5 70%
22. This course has helped me learn new techniques/activities which I can use in my own situation.	1	2	3	4 50%	5 50%
23. This course has been an easy way to have access to a graduate course.	1	2	3	4 20%	5 80%
24. The fee for receiving graduate credit ($150) was reasonable.	1	2	3 10%	4 10%	5 80%

25. What did you like most about this course?

Respondent 1: No response.

Respondent 2: I could take it without having to drive a long distance. It was great for rural areas.

Respondent 3: Slides and videos.

Respondent 4: No response.

Respondent 5: Convenience of course via telecommunication.

Respondent 6: No response.

Respondent 7: The easy accessibility; the instructor was very interesting and informative.

Respondent 8: The fact that I could join the telecast and well into the program or tape it as necessary since it began at 1:30 pst and I'm in class teaching.

Respondent 9: The overhead transparencies and the written diagram.

Respondent 10: No response.

26. What improvements would you suggest?

Respondent 1: No response.

Respondent 2: Allow more time for students to copy graphics.

Respondent 3: No response.

Respondent 4: No response.

Respondent 5: Space tests our more so they don't come mostly at the end of the semester.

Respondent 6: No Response.

Respondent 7: I enjoy the visual aids and would like to see more.

Respondent 8: Photocopied graphs/tables/etc. be sent to students sites to help decrease the time needed to relay material during showtime.

Respondent 9: More written diagrams and keep Dr. Caputo.

Respondent 10: No Response.

Additional comments:

Respondent 1: No response.

Respondent 2: No response.

Respondent 3: No response.

Respondent 4: No response.

Respondent 5: No response.

Respondent 6: Please continue this program.

Respondent 7: I would like to see more satellite classes offered for graduate credit. I believe there would be more teachers working on Masters Degrees if the opportunity was available.

Respondent 8: No response.

Respondent 9: I really learned a lot and enjoyed Dr. Caputo.

Respondent 10: I have really enjoyed the course. I thought that it may have been interesting to have students from each of the sites collect rocks from their area and get a sample together of the various rock forms.

Course Evaluation Questionnaire
Demonstrations and Concepts for Physics Teachers I

Would you please take a few minutes to help us evaluate this class? For each statement, will you circle the number that reflects your opinion? Return your completed questionnaire as soon as possible in the stamped, self-addressed envelope to:

Ms. Connie Vaughn
STAR Schools Project
Mississippi State University
P.O. Drawer 5167
Mississippi State, MS 39762

Please do not put your name anywhere on this document. Thank you.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1. The stated objectives are appropriate.			14%	32%	50%
2. The telecasts have been well-organized.			9%	23%	68%
3. The telecasts have accomplished the stated objectives.		4%	9%	41%	46%
4. Each segment made a contribution to the entire program.			9%	36%	55%
5. All activities discussed or demonstrated were appropriate for the lesson content.		4%		32%	64%
6. The sequence of lessons was appropriate.		4%		37%	59%
7. Each segment demonstrated in-depth planning.			9%	27%	64%
8. The coverage of each topic was adequate.		14%	9%	23%	54%
9. Each lesson was interesting and informative.		4%	14%	27%	55%
10. The graphics and audio enhanced each telecast.				45%	55%

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
11. Learner participation was encouraged.				27%	68%
12. The language used was appropriate.				32%	64%
13. The course requirements were appropriate for the amount of credit received.				37%	59%
14. The handouts of demonstrations and experiment were helpful.			9%	23%	6[illegible]%
16. Each telecast looked well on the screen.		4%	14%	9%	68%
17. The lighting was appropriately arranged.			4%	23%	68%
18. The camera shots were adequate.				27%	68%
19. The videotape segments that were shown enhanced the broadcasts.			4%	27%	64%
20. The special guests added additional insights into the content of each telecast.		4%	9%	27%	55%
21. Overall, the production of this course was very well done.			9%	18%	68%
22. The video instructor was readily accessible to students out of class.			4%	32%	59%
23. The video instructor demonstrated content knowledge.				14%	82%
24. The video instructor communicated a sincere interest in the course.				9%	86%
25. Grading and evaluation procedures were fair and objective.			4%	14%	77%

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
26. This course has helped me learn new techniques/ activities which I can use in my own situation.				36%	55%
27. This course has been an easy way to have access to a graduate course.			4%	27%	64%
28. The fee for receiving graduate credit ($150) was reasonable.		5%	4%	27%	59%

All evaluation forms are on file at Mississippi State University, Hilbun 241.

29. What did you like most about this course?

"Communication with other teachers."

"I like the convenience of taking it in my own library."

"Dr. Harpole is a good teacher. I liked the demonstrations and the visit to the National Science Teachers Convention in Atlanta. The 3:30 p.m. time period was also good."

"The greatest asset was to learn <u>methods of teaching</u> the topic. Second, to learn that Dr. Harpole is available as a resource person if we need help."

"Dr. Harpole was wonderful! Demo's and experiments."

"The attitude of the instructor."

"Content, presentation, accessibility."

"Demonstration/Lab Activity Ideas."

"It enabled me to stay close to home and still achieve my goal of earning my certificate in physics."

"Accessibility."

"The instructor was great."

"There were two things I liked most about this course: (1) the time the class aired and (2) the emphasis placed on helping teachers improve their teaching skills through demonstrations."

"Dr. Harpole was so sincere in her desire to help us as individuals both on the air and over the phone during office hours. She never made me or the other students feel that our questions were an imposition or unnecessary."

"Being able to replay the tape so I could better understand."

"Class demonstrations."

"The availability of the instructor and her way of remembering the students."

30. What improvements would you suggest?

"A little more time in some areas."

"I feel that I would benefit if there were more problem-solving strategies."

"Since the title of the class contained the word 'Demonstrations,' I felt that more time could have been devoted to demonstrations and less time to problem solving. Some programs spent 90% of time on problem solving and 10% on demonstrations."

"No improvements except to receive test papers back."

"Needed more air time."

"None."

"None."

"More Demonstrations/Lab Activities."

"More demos."

"Have students send assignments in between tests so they don't procrastinate and not be prepared for tests."

"Give more examples. State objectives for each lesson. Stick to course outline or cover objectives in detail. Give more practical applications for objectives."

"Conference lines so all students could be on-line at the same time."

"Run the program the same semester as we are teaching the course so the materials can be used immediately in our high school classrooms."

"For those of us not physics majors, more programs - at least one each session."

"Keep graphics on air longer."

"Designated questioning time."

Additional comments:

"I would like to see the second-half on TI-IN, also."

"I would recommend Dr. Harpole if you have a second course. Also spend 50% of time with demonstrations. Keep the 3:30-6:30 time slot, as I live 45 miles from school and would not wish to stay later."

"I would like to be able to take additional courses by this method - especially the second course to this series."

"An excellent arrangement between Mississippi State University and TI-IN, very beneficial to the high school teacher. Dr. Harpole did an excellent job."

"Please continue this program."

"I would be interested in the second half of this course."

"I would have enjoyed the class more in an actual classroom, but TV is a good alternative."

"The course required many hours of time outside of class for study and problem solving."

"Dr. Harpole did an outstanding job."

"I thought the course and Dr. Harpole were absolutel outstanding! The demonstrations and video tapes were very helpful. The broadcast from the national convention in Atlanta was great. I've shared it with teachers in 5 other schools & they found it to be very interesting. Keep up the excellent work!"

"Very Good! A great way to cut down on expenses and still learn and get 3 hr. credit. Offer other courses - which you're doing."

"There should have been more problems worked during air time. I would like to suggest a designated question time to keep from interrupting during the middle of a problem being explained or to avoid time delays because the question may have been answered if the objective or problem had been finished before it was interrupted."

The Results of the Course Evaluation Questionnaires.

'THEORY OF EQUATIONS FOR SECONDARY TEACHERS'

Mississippi State University
June 4-25, 1990

27. What improvements would you suggest?

- There was not enough time to finish the assignment, the class should met every other day.
- Eliminate the 'de-scramble' and work on the technical problems.
- The information sent out by TI-IN was inadequate.
- Need more examples worked out.
- Cooperation needs to be assured at the down-sights.
- Student should make a photocopy of their work on tests before mailing them, just in case they get lost in the mail.
- It might help to have several students in the studio taking the class (for immediate feedback to the instructor).
- 4-5 week-course instead of 3 weeks.
- More immediate feedback on test grades.
- Could it be set up for morning.
- Signal not sent to down site until San Antonio was called by personnel at down site.
- Signal not sent at two different times during period of course.
- Audio problems.

Appendix D

Follow-up Survey
Junior High Science Teacher Institute

1. What activities from the Junior High Science Teacher Institute (JHSTI) have you used this past semester?

   Respondent 1: I have incorporated many of the lab activities into my classroom. I have used the questioning techniques also.

   Respondent 2: natural indicators, surface tension, plants in milk cartons.

2. Do you plan to incorporate any activities from the JHSTI into your next year's classes?

   Respondent 1: Yes. I have changed some of the ideas.in many areas of study. I intend to use more next year.

   Respondent 2: Yes

3. Would you take another similar course to this one via satellite?

   Respondent 1: Yes. I would be thrilled to take another course of this nature. I missed the physical science course this past semester.

   Respondent 2: Yes

4. What other comments would you like to share with us?

   Respondent 1: This has been the most useful of any course that I have taken. It gave me many new ideas and taught me many questioning techniques.

   Respondent 2: Start the course earlier in the fall so it doesn't interfere with holidays.

Please return this questionnaire as soon as possible but no later than May 20 to:

Dr. Linda W. Morse
Mississippi State University
P.O. Box 5365
Mississippi State, MS 39762

Appendix E

MISSISSIPPI STATE UNIVERSITY

BUREAU OF EDUCATIONAL RESEARCH
AND EVALUATION

P. O. BOX 5365
MISSISSIPPI STATE, MISSISSIPPI 39762
PHONE (601) 325-3717

Memorandum

DATE: September 7, 1990

TO: Final Report Files

FROM: Linda Morse

SUBJECT: Junior High Science Teacher Institute (JHSTI)

The JHSTI represented the culmination of many months of hard work and planning in preparation for the first air date on Oct. 4, 1989. This course was the first interactive telecourse to be broadcast which originated in Mississippi. Several important lessons were learned:

1. Each lesson needs careful attention to instructional design. Needs assessment and support material are especially important for unseen students.
2. Publicity must begin early and involve lots of follow-up. For many teachers in rural settings, distance learning is the great "unknown".
3. Contact with students is critical.
4. Innovative approaches to delivery is a must in order to keep attention on the program for 3 hours.
5. This course was highly successful.

Interesting materials and delivery, strong support materials, and good rapport with the students contributed to this success.

Finally, for all team members on the JHSTI, this was a wonderful opportunity and an enjoyable project.

MISSISSIPPI STATE UNIVERSITY

DEPARTMENT OF GEOLOGY & GEOGRAPHY
P. O. DRAWER 5167
MISSISSIPPI STATE, MISSISSIPPI 39762
PHONE (601) 325-3915

September 5, 1990

TO: Dr. Linda Morse

FROM: Dr. Mario V. Caputo Mario V Caputo

SUBJECT: Response for final report

1. Meeting goals and objectives:

The goal or objective of the course, "Geology: A science of a living planet" was to deliver an advanced Physical Geology course to college-graduates who are certified high school teachers. It provided a means of instruction for those employed teachers who:

a. cannot attend colleges or universities in the vicinity of where they live because of sheduling conflicts between employment or family,

b. reside at a considerable distance away from a college or university,

c. live near a college or university which does not have the capability of offering an earth science course.

The above goal/objective was achieved by technical lectures, graphical material, video tapes, slides, published diagrams, and hand-drawn diagrams delivered live from a television studio to viewers most of whom live out-of-state.

2. Lessons Learned:

a. impersonal nature of distance-learning

b. requires rigid planning on part of instructor. Extended lectures or unforeseen delays which may exceed the time allotted for each program are not accomadated by a rigid, inflexible programming schedule.

c.the course is probably overdue in timeliness because there is no other course in geology which is taught by live telecast. The greatest tragedy, absurdity, and annoyance is that the instructor has planned, prepared, and co-produced a+ program for over a full year and successfully built-up momentum to complete the course only to find that the Star Schools Project has been terminated for Mississippi State with no futrue funds or plans to continue.

3. Significant Outcome:

The most significant outcome from the course, is that, through the skill and talents of the instructor and production crew, and MSU through the TI-IN United Star Network, the out-of-state student was provided with an inexpensive course in geology to enhance his or her teaching certification and qualification.

Mississippi State University

Drawer 5167 • Mississippi State, MS 39762 • (601) 325-2806

Department
of
Physics and Astronomy

TO: Linda W. Morse

FROM: Sandra H. Harpole Sandra

SUBJECT: Demonstrations and Concepts for Physics Teachers I

DATE: September 24, 1990

As a final wrap-up for the STAR Schools Project, I would like to share with you my thoughts on the Project. I was one of the people most apprehensive about teaching in a setting with no students and in a situation in which everything was live with no chance for correcting mistakes. As a result of the wonderful experience I had with the course, I have completely changed my thinking.

I feel it is important to teach to the students (through the camera) rather than teaching to a group of students in a classroom with the camera eavesdropping so to speak. My students told me they felt that I was teaching directly to them. They were very comfortable with interacting with me and other classmates through the phone system. I enjoyed getting to know them both on the air and through their calls to me during office hours. I benefitted greatly from their sharing of ideas and concerns. I also enjoyed getting to meet some of them at the National Science Teachers Association in Atlanta.

The opportunity to get to know teachers from all over the United States and to have them know about Mississippi and our teachers was an opportunity I particularly enjoyed. Several of the students commented that physics teaching seemed the same everywhere.

The evaluations show how effective the students thought this method of teaching was with most of them expressing much interest in a second course taught by this method. I think this is a very effective method of reaching teachers, particularly physics teachers, who are isolated from other physics teachers and who find it difficult for various reasons to attend a university for a similar course.

I appreciate the opportunity I was given to expose teachers to the National Science Teachers Association through the live three-hour telecast from Atlanta. I received many favorable comments about the telecast. All of the participants, including those from NSTA, NSF, and private industry were impressed with the quality of the telecast and the achievement of the objectives of the program.

This was a very positive and rewarding experience in my teaching career. I am looking forward to the opportunity to work with teachers through this medium in the near future.

MISSISSIPPI STATE UNIVERSITY
DEPARTMENT OF MATHEMATICS AND STATISTICS
P. O. DRAWER MA
MISSISSIPPI STATE, MISSISSIPPI 39762
PHONE (601) 325-3414

TO: Linda Morse
FROM: Jerry Reed JMR
SUBJECT: Final Report / STAR School Project
DATE: September 7, 1990

The information you requested is as follows:

1. The highlight of the STAR Schools Theory of Equations course was the response of the students. After a day or two it was almost as if they were physically present in the TV studio. Their questions, both on the air and via the 800 call-in, led me to believe that they were not only enjoying the course, but were also learning the material. As the teacher, I realized that an 8 1/2 x 11 inch "chalkboard" was not a limitation (even though a mathematics teacher depends on the chalkboard). Before the telecast I doubted that any significant level of rapport between teacher and student could be developed via a television presentation of the material; however, I was wrong! Given the opportunity, and the right time frame, I would do it again.

   The June two hours every day format was also an initial concern, but in actuality it did not cause any significant problems.

2. The course syllabus is attached.

3. Summaries of the COURSE PARTICIPANT QUESTIONAIRE and the COURSE EVALUATION QUESTIONAIRE are also attached.

4. I met with Ralph Olivieri on Thursday, 9-6-90, and discussed the 15 minute videotape synopsis of the course. Suggestions (by broadcast number and relative position on the tape) were made as to what material might be included in the synopsis.

NORTH CAROLINA DEPT OF PUBLIC INSTRUCTION

TI-IN UNITED STAR NETWORK.

NORTH CAROLINA DEPARTMENT OF PUBLIC INSTRUCTION - PROGRAM ACTIVITIES FOURTH QUARTER

Summer 1989

Classroom Component

A copy of a site visit report from Ann Hart, Mathematics Coordinator for Region 3 - Central Regional Education Center, is provided as Attachment A. It reflects her observations on the Algebra II course offered this summer at Louisburg High School.

Staff Development Component

Compilation and analysis of the results from the evaluation instruments used for the Foreign Language in the Elementary Schools have been completed. Three instruments were used.

1. Pre/Post Testing

   A total of 289 individuals returned evaluation information following the conclusion of the FLES program series. Of the 289 individuals responding, thirteen failed to return both the pre- and post-tests.

   The mean difference in pre- and post-test scores (i.e., the growth score or treatment effect) was +8.51, calculated on information from 276 individuals. Thirty-five individuals scored 100% on both the pre- and post-tests. If these perfect scores are excluded, the mean difference in pre- and post-test scores rises to +9.75. In addition, twenty-nine individuals, or 10.5% of those who returned both tests, improved their performance twenty points or more on the second evaluation. Forty-nine individuals, or 16.2% of total participants earned perfect scores on the post-test.

2. Participant Evaluation of Staff Development Activity

   Standard North Carolina Staff Development Evaluation Form SD-26 was used for this aspect of the evaluation. This form is used for all state staff development activities, whether traditional workshop or non-traditional satellite broadcast. The results from 272 participants are provided as Attachment B.

   Particularly noteworthy are the responses to items 3, 4, 5, 9, 11, 12, 13, 16.

   Items 3, 4, and 5 related to content:

   - 95% of the respondents "strongly agreed" or "agreed" with the statement that "the content of the workshop reflected careful planning and organization."

- 96% "strongly agreed" or "agreed" that "the presenters were well prepared."

- 86% "strongly agreed" or "agreed" that "the presenters provided for a variety of learning styles."

Items 8, 9, 11, 12, and 13 reflected satisfaction level with interaction during the series.

- 86% "strongly agreed" or "agreed" that "provisions were made to actively involve participation in the learning process."

- 93% "strongly agreed" or "agreed" that "questions and concerns were handled appropriately."

- 86% "strongly agreed" or "agreed" that "participants were provided with periodic feedback and encouragement."

- 86% "strongly agreed" or "agreed" that "visual aids and handouts were useful and understandable."

Finally the summary statement elicited a 91% "strongly agree/agree" response that "overall, this workshop/seminar was a successful training experience for me."

3. <u>FLES Participant Survey of Delivery System Functioning</u>

A summary of responses to this questionnaire is provided as Attachment C. Again, the summary questions generated positive responses. Ninety-seven percent of the 260 respondents indicated they 'would take another staff development activity by satellite' and 96% indicated they would "encourage others to participate in staff development activities by satellite."

Attachment A

NORTH CAROLINA DEPARTMENT OF PUBLIC INSTRUCTION

Central Regional Education Center
1401 N. Arendell Avenue
Zebulon, NC 27597
Phone: 919/269-7438

Bob Etheridge
Superintendent

July 27, 1989

MEMORANDUM

TO: Mary Ann Bardin
DLS Consultant
Division of Media and Technology

FROM: Ann Hart, Mathematics Coordinator AyH

SUBJECT: TI-IN Algebra II Course

Following are my observations of our visitation to the Louisburg site:

1. The students would benefit from better utilization of all available technology i.e., the lap board.
2. On-going assessment of student progress, monitoring and evaluating homework and classwork, and varying methods of instruction would enhance the program.
3. Feedback from the instructor on quizzes and tests could be faster.
4. Increased student utilization of tutoring time needs to be encouraged.
5. The particular students at the Louisburg site do not provide appropriate information on student success due to their weak mathematical backgrounds (4 or 5 of the 7 students had failed Geometry and made a D in Algebra I).
6. A summer school setting does not provide enough appropriate information on the course to determine effectiveness.
7. The potential benefits of the TI-IN program for mathematics courses are tremendous.

Please call me if you have any questions or if I can be of any further assistance.

AYH:ed
cc: Dr. Bob Jones
Dr. Cleo Meek

Attachment B

PARTICIPANT EVALUATION OF THE STAFF DEVELOPMENT ACTIVITY

Instructions

Each participant in this staff development activity should evaluate the activity by checking whether he/she Strongly Agrees, is Undecided, Disagrees, or Strongly Disagrees with each of the statements below. (The director of the activity should summarize for the group and record the results in Section H of the Evaluation Report Form SD-26.)

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1. Materials, supplies, and equipment were ready at the beginning of the training activity.	129	77	3	45	2
2. Participants were introduced to the specific learning objectives and materials of the workshop/seminar.	151	111	4	2	1
3. The content of the workshop reflected careful planning and organization.	179	80	7	5	1
4. The presenter(s) (were) well prepared.	173	87	7	1	1
5. The presenter(s) provided for a variety of learning styles.	124	109	18	15	5
6. The presenter(s) modeled effective time use.	126	116	13	14	2
7. The sessions were conducted at a brisk pace.	102	123	22	22	3
8. The experiences of participants were utilized as a resource for learning.	141	110	11	6	5
9. Provisions were made to actively involve participants in the learning process.	119	115	12	16	9
10. Adequate time was allowed for participants to reflect on and relate workshop material and content to their experiences and needs.	98	115	24	19	12
11. Questions and concerns were handled appropriately.	126	128	10	4	3
12. Participants were provided with periodic feedback and encouragement.	120	110	19	13	7
13. Visual aids and handouts were useful and understandable.	101	130	16	22	0
14. Adequate provisions were made for participant comfort.	104	141	12	12	3
15. Administrative and procedural concerns were handled smoothly and efficiently.	129	126	8	4	2
16. Overall, this workshop/seminar was a successful training experience for me.	127	121	13	7	4

Attachment C

FLES PARTICIPANT SURVEY RESULTS

1. The video quality was satisfactory.

   246 Yes   17 No

2. The audio quality was satisfactory.

   202 Yes   57 No

3. The video cassette recorder worked satisfactorily.

   248 Yes   6 No

4. The talkback phone worked satisfactorily.

   184 Yes   71 No

5. The receive site classroom facilities were satisfactory.

   252 Yes   12 No

6. Handouts were received on a timely basis.

   189 Yes   73 No

7. Any technical problems were satisfactorily resolved.

   203 Yes   51 No

8. Would you take another staff development activity by satellite?

   252 Yes   8 No

9. Would you encourage others to participate in staff development activities by satellite?

   249 Yes   11 No

TI-IN UNITED STAR NETWORK.

TI-IN FOREIGN LANGUAGE IN THE ELEMENTARY SCHOOL
EVALUATION SUMMARY

JAN. 29 - MAY 21, 1990

PRE AND POST-TESTS:

A total of 262 individuals returned evaluation information following the conclusion of the second Foreign Language in the Elementary School series. Of the 262 individuals responding, twelve failed to return both the pre- and post tests.

The mean difference between pre-tests and post-tests (i.e. growth score or treatment effect) was 7.39, calculated on information from 250 individuals. Twenty-six individuals scored 100% on both pre- and post tests. If these perfect scores are excluded, the mean difference in pre and post-tests rises to 7.82. Fifty-nine individuals or 23.6% of those who returned both tests were able to improve their performance sixteen points or more. Twenty-one participants showed gains of twenty-four points or more.

NORTH CAROLINA STAFF DEVELOPMENT EVALUATION FORM:

A copy of the frequency tabulation for the North Carolina staff development evaluation form for the series is attached.

PARTICIPANT RESPONSES:

At the end of the post-test, each participant was also asked the following question: "Will the series have an impact on how you do your job?". Here are some of the participants' responses:

"Basically, I feel more confident and better equipped to do my job as a result of this series. I'm definitely more attuned to my children in terms of their development and the acquisition of language. The knowledge I acquired in this series will greatly enhance my input into our county's curriculum planning for next year.

I was impressed with the commitment and dedication of the people in this series. To a person, those involved were energetic and enthusiatic about our state's undertaking to teach our elementary children a foreign language. Dr. Woodford, in the last session, was the icing on the cake! Preparing young people to function in our global village is

what it's all about and we, as FLES teachers, have the privilege to be part of this.

Enthusiasm is contagious. I caught it! "
- a Watauga Co. teacher

"It has given me the overview necessary to adequately envision how to "attack" the job. I now have the strategies, methodology, and materials to begin teaching at the elementary level. I realize the breadth and scope involved in curriculum integration and have a basis from which to work.

I have acquired a better understanding of the importance of integrating the second language program with the curriculum and will strive to implement such strategies."
- a Burlington teacher

"Yes, this series is having an impact on my job now. First of all, the variety of experience, ideas, points of view have made me more enthusiastic, more excited about teaching language and this has given added vitality to my classes. I have tried out some of the ideas I learned on the program and shared them with other teachers. I got a more global idea of North Carolina's program and have been able to share this with other teachers, parents, students - which has helped everyone realize why this new part of the curriculum was included and what its goals are. I would love to have another one, in the language classes themselves. This input is so important to encourage, inspire, excite teachers, maybe with some added "group discussion among viewers" activity included. Otherwise, I loved this program. Thank you very much."
- a Winston-Salem/ Forsyth teacher

"Yes. I teach Spanish in high school. Spanish is being taught in one of our 3 feeder schools. I appreciate knowing what conversational approaches have been used. I still have to begin in very elementary levels, but hopefully their background will enable them to progress well. Conversational, rather than grammatical approaches, are becoming more and more effective and I intend to downplay teaching grammar and use it to back up what the students are able to do conversationally."
- a Wilkes Co. teacher

"Most importantly, I plan to work much more closely with the classroom teacher to develop lessons related to

grade-level curriculum instead of teaching the language independently as a language."

- a Burlington teacher

"Yes. The ideas for the activities were very helpful. Also, after teaching in a regular classroom for many years in grades 1-3, I had a lot of pre-conceived ideas about middle grades that were changed."

-a Wilkes Co. teacher

"Yes - I have taken several of the ideas presented in the series back to my classroom. Although I teach secondary foreign language, I was able to use several ideas. I also am more conscious of my use of the foreign language. I am using much more than I was before. This series also helped me see that I'm not ready for an elementary school position!"

- a Moore Co. teacher

"Yes. I will be making and buying materials that are good and appropriate. I will be doing more content-based instruction. I understand better how and when to teach reading and writing."

- a Wilkes Co. teacher

"Yes, I think that because of this series I will be more tolerant of my students listening/speaking skills. In the past, I have expected production immediately but now I don't. Also, I am aware of using TPR more in the classroom. Aslo, I now try tom ignore grammar errors if the effort is being made to speak the language."

- a Lexington teacher

"Yes, I will always be learning with my class so I can continue to help them on the days the Spanish teacher isn't there. I will also encourage other teachers to "get involved." I will encourage my teacher assistant and Foster Grandparent to become involved."

- an Alleghany Co. teacher

"Yes, I know it will. I have gotten many wonderful ideas from the series. (I have already used some of these!) As I receive students who have had several years of French, I look forward to teaching reading and writing! I got some great ideas and information on treaching reading and writing

in second language from the series. I also intend to use the ideas for games and activities given in the series. I know I will be more patient in teaching the language. In other words, I will allow more time for the students to transfer oral comprehension to speaking ability."

- a Robeson Co. teacher

"I've gained a tremendous amount of confidence. I've also implemented many of the ideas presented during the program. Indeed, this series had a strong impact on my performance."

- a Jackson Co. teacher

Frequency Tabulation

Quick Survey

	A	B	C	D	E	Miss.	N	Mean	SD	MDN
Quick survey question number 1										
Total f:	207	47	7	10	1	8	272	1.35	0.74	1.0
Total %:	76.1	17.3	2.6	3.7	0.4					
Quick survey question number 2										
Total f:	226	40		1		13	267	1.16	0.40	1.0
Total %:	84.6	15.0		0.4						
Quick survey question number 3										
Total f:	223	50				7	273	1.18	0.39	1.0
Total %:	81.7	18.3								
Quick survey question number 4										
Total f:	226	48	2			4	276	1.19	0.41	1.0
Total %:	81.9	17.4	0.7							
Quick survey question number 5										
Total f:	149	92	22	11		6	274	1.62	0.80	1.0
Total %:	54.4	33.6	8.0	4.0						
Quick survey question number 6										
Total f:	168	82	11	13		6	274	1.52	0.79	1.0
Total %:	61.3	29.9	4.0	4.7						
Quick survey question number 7										
Total f:	130	96	17	27	4	6	274	1.83	1.02	2.0
Total %:	47.4	35.0	6.2	9.9	1.5					
Quick survey question number 8										
Total f:	165	76	13	16	4	6	274	1.61	0.93	1.0
Total %:	60.2	27.7	4.7	5.8	1.5					
Quick survey question number 9										
Total f:	137	87	30	17	4	5	275	1.78	0.97	2.0
Total %:	49.8	31.6	10.9	6.2	1.5					
Quick survey question number 10										
Total f:	130	93	23	20	4	10	270	1.80	0.98	2.0
Total %:	48.1	34.4	8.5	7.4	1.5					

	A	B	C	D	E	Miss.	N	Mean	SD	MDN
Quick survey question number 11										
Total f:	189	71	9	3	1	7	273	1.37	0.64	1.0
Total %:	69.2	26.0	3.3	1.1	0.4					
Quick survey question number 12										
Total f:	140	87	35	8	4	6	274	1.72	0.90	1.0
Total %:	51.1	31.8	12.8	2.9	1.5					
Quick survey question number 13										
Total f:	168	83	16	9		4	276	1.51	0.75	1.0
Total %:	60.9	30.1	5.8	3.3						
Quick survey question number 14										
Total f:	174	70	21	9	4	2	278	1.56	0.88	1.0
Total %:	62.6	25.2	7.6	3.2	1.4					
Quick survey question number 15										
Total f:	202	57	14	3	2	2	278	1.37	0.70	1.0
Total %:	72.7	20.5	5.0	1.1	0.7					
Quick survey question number 16										
Total f:	187	71	7	9	3	3	277	1.45	0.79	1.0
Total %:	67.5	25.6	2.5	3.2	1.1					

ID NUMBER

SPECIAL CODES A B C D E F G H I J

North Carolina Staff Development Survey

Use a pencil to darken in the circle that matches your response to each of the following items.

STRONGLY DISAGREE E

DISAGREE SOMEWHAT D

UNCERTAIN/NO OPINION C

AGREE SOMEWHAT B

STRONGLY AGREE A

Please write suggestions and comments on the back of this form in the WRITE-IN areas

USE NO. 2 PENCIL ONLY

1. Materials, supplies, and equipment were ready at the beginning of the training activity. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
2. Participants were introduced to the specific learning objectives and materials of the workshop/seminar. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
3. The content of the workshop reflected careful planning and organization. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
4. The presenter(s) was/were well prepared. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
5. The presenter(s) provided for a variety of learning styles. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
6. The presenter(s) modeled effective use of time. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
7. The sessions were conducted at a brisk pace. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
8. The experiences of participants were utilized as a resource for learning. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
9. Provisions were made to actively involve participants in the learning process. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
10. Adequate time was allowed for participants to reflect on and relate material to their experiences and needs. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
11. Questions and concerns were handled appropriately. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
12. Participants were provided with periodic feedback and encouragement. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
13. Visual aids and handouts were useful and understandable. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
14. Adequate provisions were made for participant comfort. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
15. Administrative and procedural concerns were handled smoothly and efficiently. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
16. Overall, this workshop/seminar was a successful training experience for me. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
17. Technically, the telecast was trouble-free. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
18. The talkback unit was functional and available for use. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ